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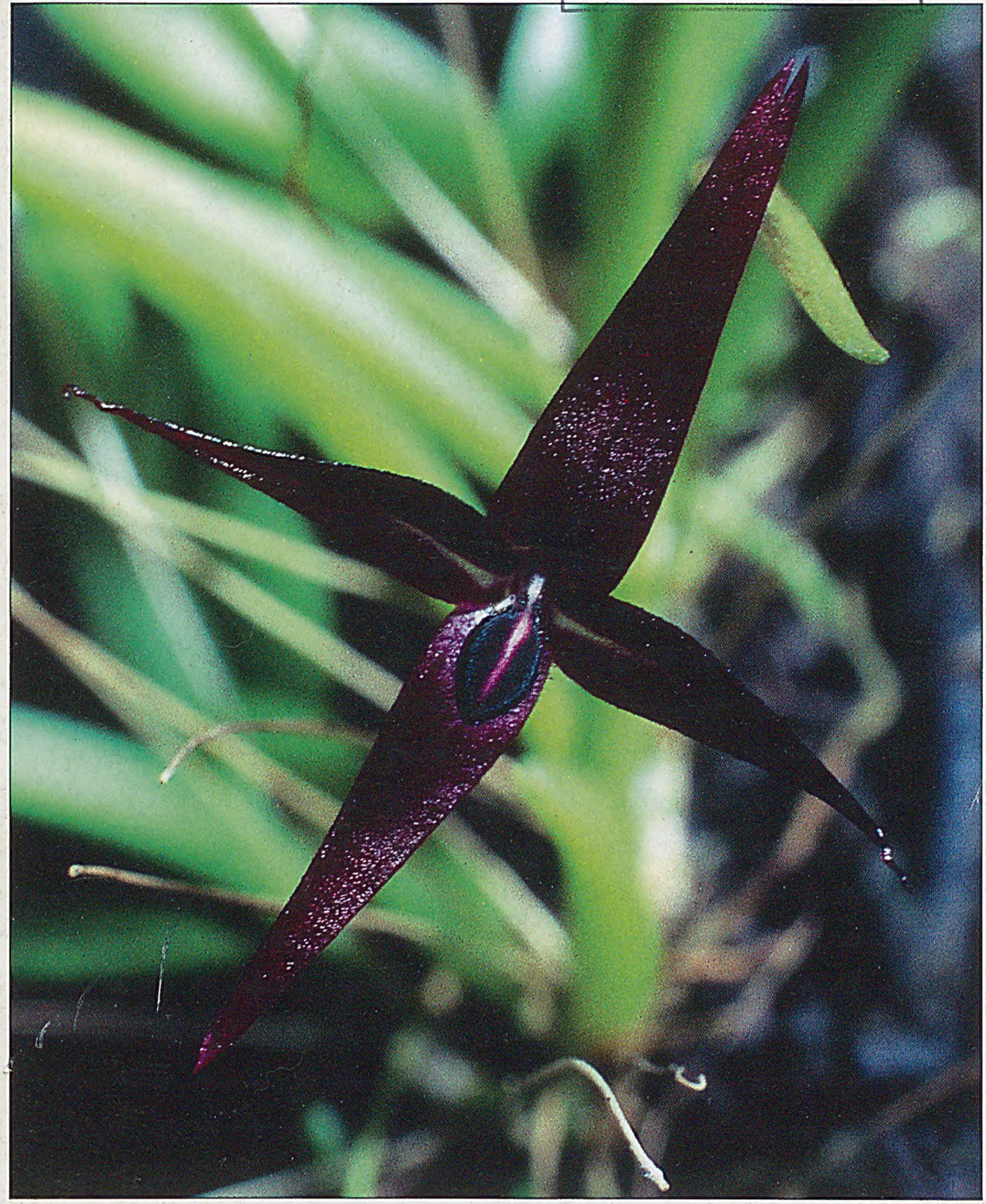

M.W. Harrison ©

Bulbophyllum sladeanum
from Mt. Lewis, North Queensland

George Hermon Slade AM
14th July 1910 - 26th June 2002

30 June 2002

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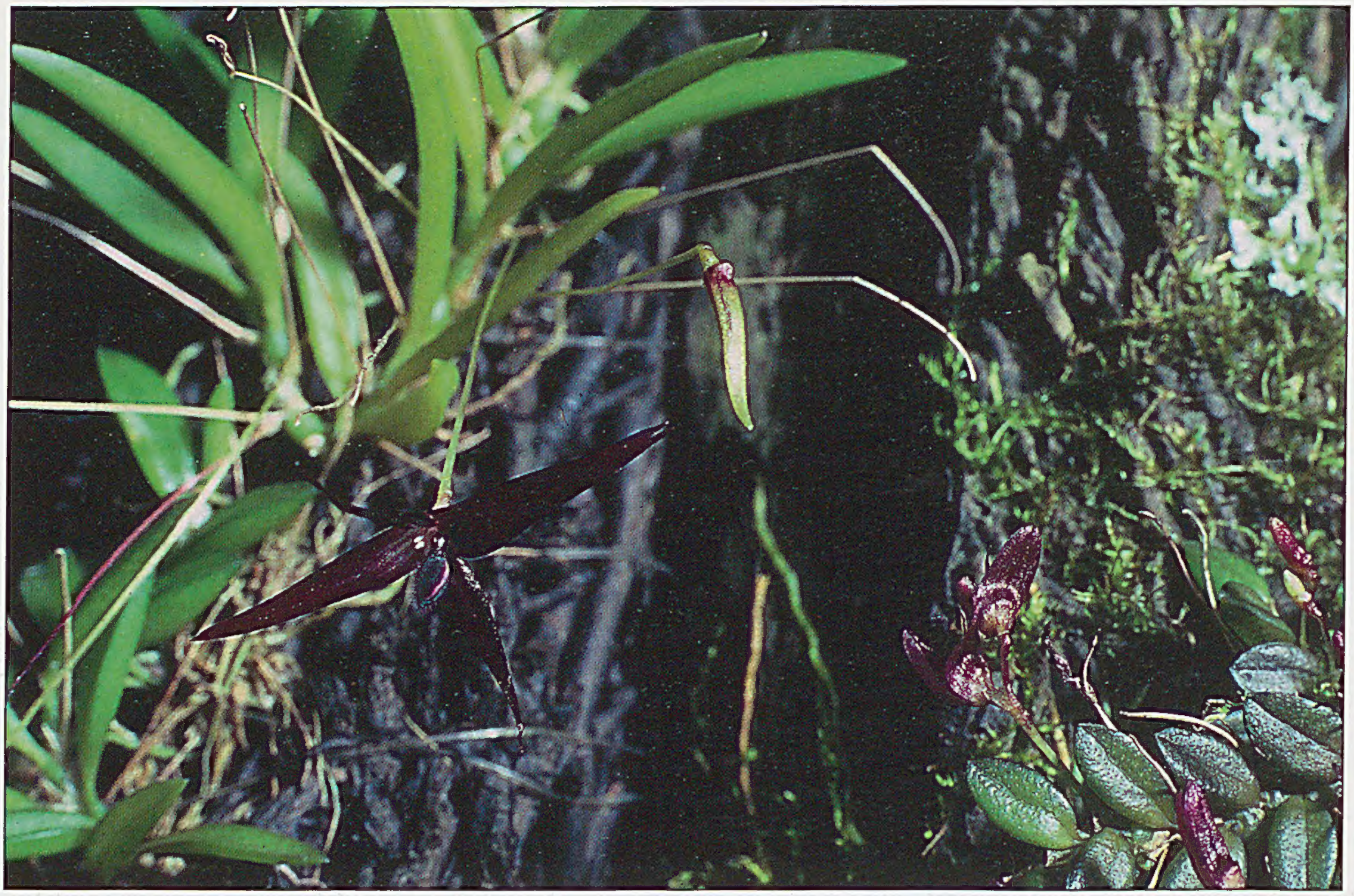
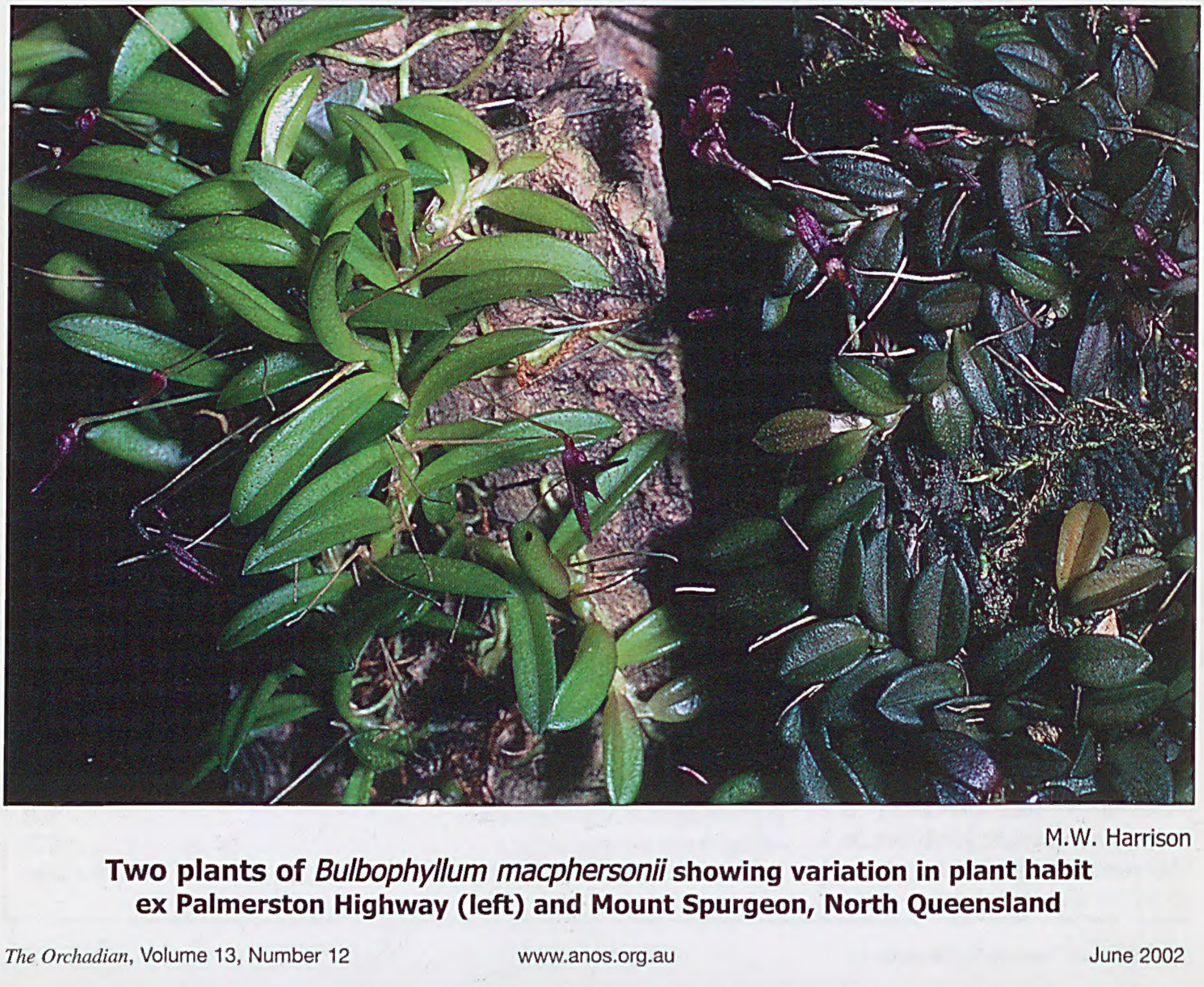


M.W. Harrison

Bulbophyllum sladeanum* (left) next to *Bulbophyllum macphersonii



M.W. Harrison

Two plants of *Bulbophyllum macphersonii* showing variation in plant habit ex Palmerston Highway (left) and Mount Spurgeon, North Queensland

The History and Application of *Bulbophyllum sladeanum* A. Hawkes

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Within *Bulbophyllum*, section *Polyblepharon* is represented in Australia by only two species, the widespread and often abundant *B. macphersonii*, and its close relative, *B. sladeanum*[1]. Restricted to moderate to high elevation rainforests and cloud forests on and around the Atherton Tableland in far north Queensland, *B. sladeanum* appears to be of uncommon occurrence and it is not frequently seen in cultivation.

For many years, *B. sladeanum* was considered to be a botanical variety of *B. macphersonii*, and was known as var. *spathulatum*, a name applied in 1957 by Dockrill and St. Cloud to describe the form with large flowers and a spathulate labellum. However, in recent times, Mark Clements and David Jones have endorsed the treatment of *B. sladeanum* as a distinct and separate species.

The first description of this orchid was by the great German botanist, Rudolf Schlechter, who named it *B. cochleatum* in 1910, from material collected by Stephen Johnson on Mt. Bellenden Kerr, north Queensland, in 1891 (*Repert. Spec. Nov.* 8:455). In his description, Schlechter clearly refers to the concave, spoon-shaped labellum and the erect foliage, up to 30 mm long. He indirectly gives the floral dimension as at least 13 mm. tall. Somewhat surprisingly, Schlechter makes no mention of *B. macphersonii* (perhaps he was unaware of it; the name *Osyricera purpurascens* was current at that time), but states that *B. cochleatum* has inverted flowers similar to *B. polyblepheron* Schltr., from Papua New Guinea, but smaller.

In 1956 (*Lloydia* 19:93), A.D. Hawkes, the American botanist, realising that Schlechter's *B. cochleatum* was invalid, renamed it as *B. sladeanum*, in honour of G. Hermon Slade (1910-2002). Hawkes pointed out that Schlechter's use of the name *B. cochleatum* was illegitimate, due to the fact that Lindley had already applied that name in 1862 when describing an African species. Hawkes' correction of this error was a simple procedural matter, and contained no further taxonomic details. Thus the name *B. sladeanum* came into being.

Prior to Schlechter's 1910 description of *B. cochleatum*, F.M. Bailey had described *B. purpurascens* in 1884 (*Proc. Roy. Soc. Qld.* 1:88). After appearing as *Osyricera purpurascens* in R.D. FitzGerald's *Australian Orchids* in 1894, this species finally attained its more familiar epithet of *B. macphersonii* in 1934, when H.M.R. Rupp returned it to *Bulbophyllum* and gave it a new specific name, in honour of Ken Macpherson, who had sent Rupp specimens of this species from the Proserpine district (*Vict. Nat.* 51:81). Rupp determined that Bailey's specific name of "*purpurascens*" was invalid because of its prior use in 1862 for a Javanese *Bulbophyllum* species, and the generic name *Osyricera* had been suppressed decades earlier by J.J. Smith and Schlechter.

Bailey's original 1884 description of *B. macphersonii* (as *B. purpurascens*) gives the length of the leaves as 10-24 mm., and the height of the peduncle as 12-24 mm. The overall size of the flowers is not stated, but by extrapolation of the lateral sepal length (given as 4 mm), a floral dimension of no more than 10 mm. is implied. Notably, the labellum shape is described as lanceolate. Bailey also states that this species forms "dense matted patches" and was "found growing on rocks between Herberton and Mourilyan Harbour" (now Cairns). Clearly, these features are not consistent with *B. sladeanum*.

In 1957, just one year after Hawkes applied the name *B. sladeanum*, Alick Dockrill and Stan St. Cloud described *B. macphersonii* var. *spathulatum* (*Nth. Qld. Nat.* 117:4). As in Schlechter's description of *B. cochleatum* (of which Dockrill and St. Cloud were apparently unaware at that time), the labellum is noted as a prime diagnostic feature, with Dockrill stating that var. *spathulatum* is distinguished "most particularly by its distinctive, remarkably spathulate labellum", and the size of the flowers is given as up to 22.5 mm.

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[1] It should be noted that in *The Orchadian*, Vol 13 No. 11, Mark Clements and David Jones have proposed a new genus, *Blepharochilum*, to accommodate those Australian species currently contained in *Bulbophyllum* Section *Polyblepharon*.

By 1966 however, Alick Dockrill had become aware of Schlechter's *B. cochleatum* (but had not as yet caught up with Hawkes' *B. sladeanum*). Writing in *The Orchadian* ("Schlechter's Three Australian *Bulbophyllum* Species" 2:38-44), he recognizes the two taxa as one and the same thing, and reduces *B. cochleatum* to a synonym of *B. macphersonii* var. *spathulatum*. Consistent with his conventional taxonomic approach, Dockrill considered his var. *spathulatum* to fall within the broad range of *B. macphersonii*, certainly a distinct and notable form, but not different enough to warrant the status of a separate species.

It was not until 1992 that Dockrill formally listed *B. sladeanum* as a synonym of his *B. macphersonii* var. *spathulatum* in *Australian Indigenous Orchids* Vol. 2 (revised edition), where he also restated his view that "plants of this variety are the same as, and with the same variations in leaf shape as, var. *macphersonii*", and that the labellum "typically, is spoon-shaped although variable to almost the same shape as that of var. *macphersonii*".

Although *B. macphersonii* and *B. sladeanum* are closely related, there are obvious vegetative and floral differences when "typical" examples of the two species are compared. *B. macphersonii* presents as a more or less prostrate, creeping, mat-forming species, with relatively short, broad, regularly arranged leaves, and 10 mm tall flowers on short peduncles. The labellum shape is linear or narrow lanceolate. Conversely, *B. sladeanum* carries longer, fleshier leaves in a more or less erect and irregular arrangement, the flowers are at least twice the size of *B. macphersonii* and are carried on tall peduncles, and the labellum midlobe is wide and spathulate (spoon-shaped).

However, difficulties in taxonomic interpretation arise when the group is viewed as a whole, for across its geographical and altitudinal range, a series of intermediate forms exist, where vegetative and floral characters appear to fall between the two extremes. These intermediate forms cannot be easily accommodated in either "typical" *B. macphersonii* or "typical" *B. sladeanum*, but nor do they appear to represent a single, clearly definable taxon as such (i.e. a third species or variety). Perhaps they may be best considered at present as a series of variants which differ slightly from place to place: a species complex. Even with *B. sladeanum* removed from the picture, the variable nature of what remains is currently lumped into *B. macphersonii*, a treatment that may eventually prove to be unsustainable.

Of course, the difficulty in dealing taxonomically with a species complex is determining where, on the morphological continuum, to draw the line between one species and the next. Such a question is not easily resolved by reliance on floral morphology alone, as has been conventionally the case, and the application of a range of newly refined techniques for distinguishing between species is necessary to make accurate determinations. Such techniques are not at odds with traditional methods of classification, but rather are used in conjunction with them to advance taxonomic knowledge. Indeed, the preparation of plant keys is based largely on floral morphology (and, to a lesser extent, vegetative morphology), the underlying principle being that all recognised species must have reliable and consistent diagnostic morphological features, or combinations of features, by which they may be identified. At the same time, botanists must keep in mind that the application of too narrow, or too broad, a species concept will result in an unworkable taxonomy.

In the case of the *B. macphersonii* group, the spoon-shaped labellum of *B. sladeanum* is the most obvious diagnostic feature by which this species may be separated on morphology alone. However, this approach would exclude those forms that have some of the features of *B. sladeanum* (e.g. the taller vegetative habit, larger flowers on longer peduncles) but lack the spathulate lip. If, on the other hand, these adjacent forms are included, then the taxonomic integrity of *B. sladeanum* may be compromised. To achieve a thorough understanding of this group, and to determine precise species limitations, comprehensive biological, ecological and genetic studies need to be undertaken. Ultimately, the aim is to arrive at a classification that reflects the evolutionary development of the taxa involved.

Whereas *B. macphersonii* is an extensively creeping, mat-forming species that may extend to cover quite a large surface, *B. sladeanum* is more modest in its fashion of growth. Although vegetatively taller that *B. macphersonii*, it often grows on twigs and smaller branches of rainforest trees, forming compact clumps which tend to grow around and envelop the slender host limb. A favoured spot is the fork of a branchlet, where the plant has initially established itself on the protected inner aspect, and then spread outwards. However, plants are sometimes seen on the main limbs or even the trunks of host trees where light levels are adequate. Seldom, however, does *B. sladeanum* form anything more than relatively small clumps. The thin green roots may travel for 50 mm. or more across and along the host branch, invariably encountering epiphytic mosses, lichens and other diminutive, moisture -loving inhabitants of these high elevation forests. The atmosphere is cool and humid, with constant air movement, kept damp by regular, year-round rainfall, and fogs and mists on an almost daily basis. The beautiful moss gardens to be found high in the canopy, periodically bathed in dense cloud alternating with bright light, and at the whim of each passing breeze, are a manifestation of the constantly moist conditions.

In cultivation, *B. sladeanum* prefers a fairly shaded position, not necessarily dense shade, but protected from strong or direct light. It is a cool-growing species, tolerant of brief wintertime minimums down to 2°C, and it is generally grown as a shadehouse plant rather then in a glasshouse, although a cool glasshouse environment would no doubt be suitable. It is usually grown under the same conditions as *B. macphersonii*, although the latter species happily tolerates a more open, brighter position just as well. A double layer of shadecloth should give the correct light levels.

A small slab of cork or treefern fibre is the recommended host in cultivation, but any material that will hold some moisture would probably do. It is important to be able to keep it from drying out too rapidly or completely. During the 12-18 month establishment period, it is especially important to keep the plant damp, and the best way to do this is to keep the slab in a horizontal position rather than hanging it vertically on a frame or bench edge. Daily watering during the warmer half of the year is recommended, and even during the cooler months watering should not be neglected.

To replicate natural environmental conditions, it may be worthwhile installing a misting system, operated either manually, or automatically on a timer or humidistat, to keep temperatures down and humidity levels high during the warmer months. Any temperatures above 30°C, especially in conjunction with windy, dry conditions, are detrimental to the well-being of such highland rainforest and cloud forest species, and steps should be taken to moderate the orchid house atmosphere during such extremes of weather. Extra shade will certainly help to keep plants cooler and avoid scorching, but in an open shadehouse, increased frequency of watering is essential, and overhead misting is a preferred optional extra. The aim is to keep them from becoming dehydrated, for once they are water-stressed they begin to deteriorate. Such plants may be able to tolerate adverse conditions on odd occasions, but if it happens too often, they will reach a point of irreversible decline from which they cannot be rejuvenated.

All things considered, *B. sladeanum* is a relatively easy species to cultivate, and its small size and free-flowering habit make it an ideal addition to any specialist collection. Unfortunately, it is a difficult species to source, and to date it has not been available in flask. However, there are at least a few plants in cultivation, and these could perhaps provide breeding stock for future propagation.

The assistance of Mark Clements, David Jones, Alick Dockrill, David Banks and Gerry Walsh in research for this article is gratefully acknowledged.

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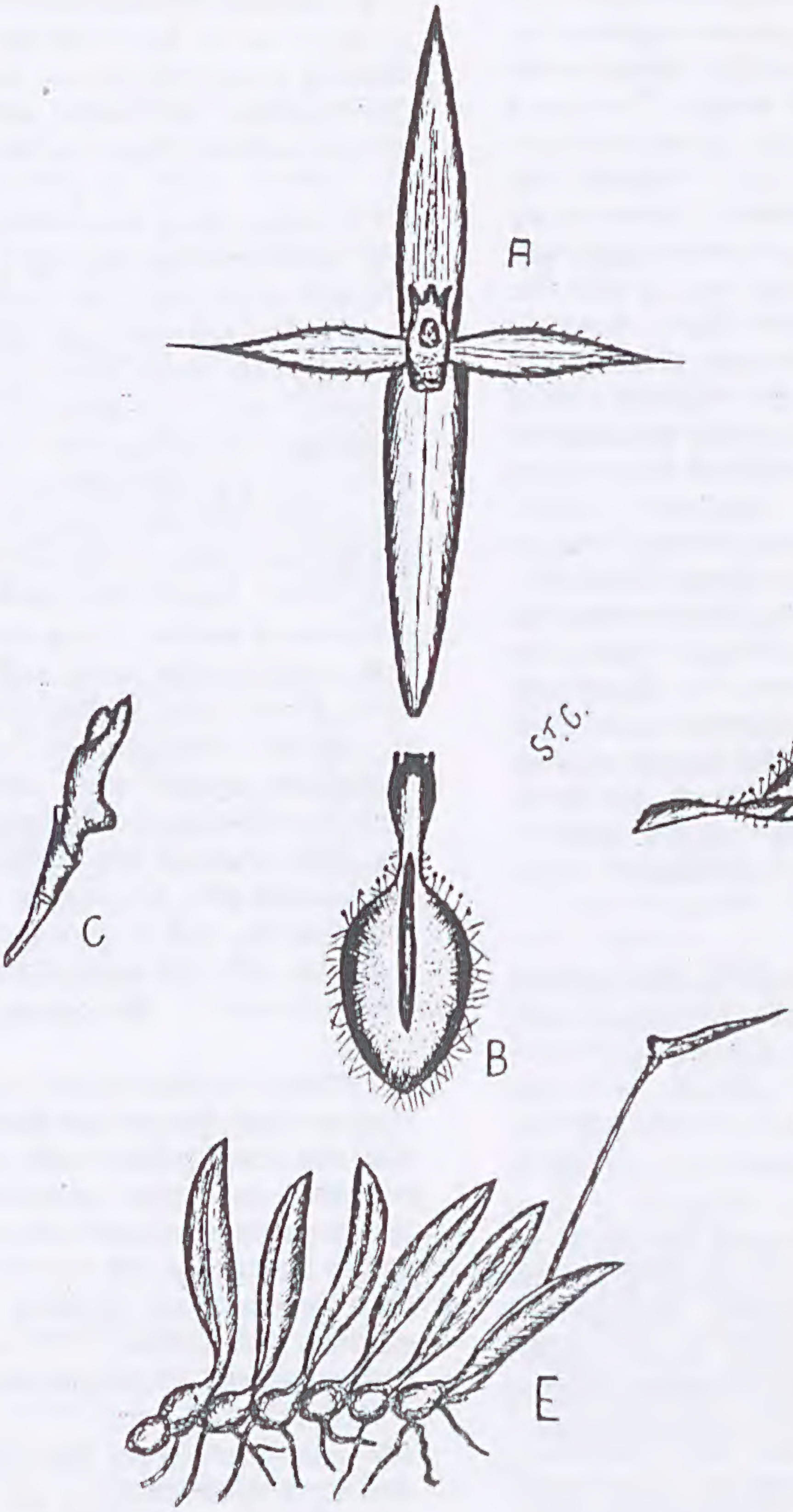
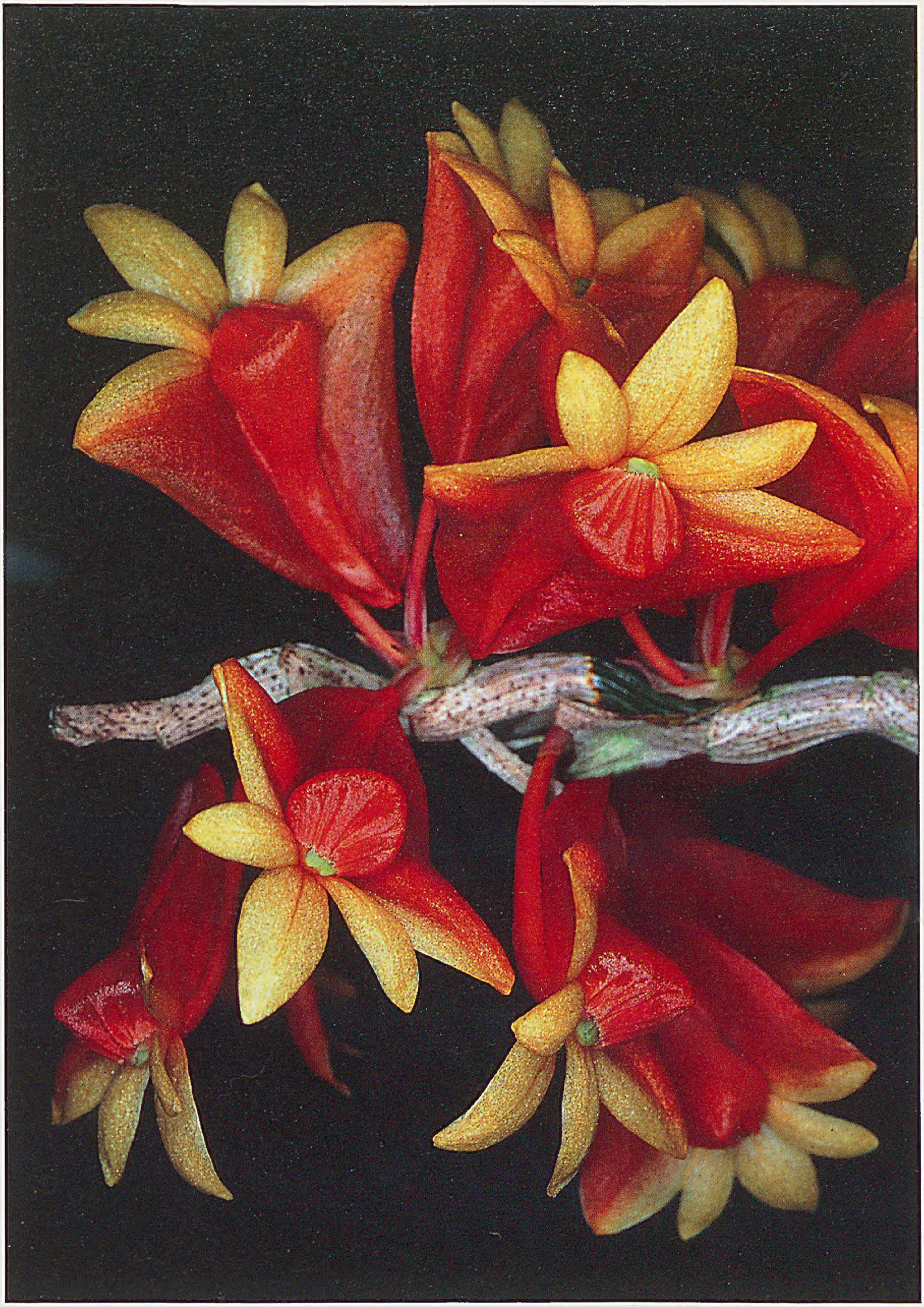


Drawing by Stan St. Cloud of the type specimen of *Bulbophyllum macphersonii* var. *spathulatum* as published by Dockrill in the *North Queensland Naturalist*, that was later to be reclassified at specific rank as *Bulbophyllum sladeanum*.
Note the long bud on the plant (E) and the distinctive labellum (B).



Grower, David P. Banks, Hills District Orchids D.P. Banks

Dendrobium chrysopterum

Dendrobium chrysopterum Schuit. & de Vogel

André Schuiteman and Ed de Vogel
Nationaal Herbarium Nederland
P.O. Box 9514, 2300 RA Leiden, The Netherlands

(Editors Note: I thank André and Ed for emailing me their recent article, "Two new species of *Dendrobium* from Sulawesi and New Guinea" that was published late last year (2001) in *Journal für den Orchideenfreund* (8)4:303-312. This is the journal in which they described the outstanding *Dendrobium chrysopterum*, which had previously been incorrectly interpreted as *D. obtusisepalum*. Here is a summary of the discussion on *D. chrysopterum*. DPB.)

Dendrobium chrysopterum Schuit. & de Vogel. Holotype: Schuiteman, Mulder & Vogel 58, Papua New Guinea, Lake Kutubu, 11 September 1990; Nationaal Herbarium Nederland, Leiden (L).

Description: Rhizome very short; roots 1–2 mm thick, branching, glabrous. Stems crowded, erect to subpendulous, unbranched, terete, becoming narrower towards the base and apex, flexuose in upper part, 20–50 cm by 3–7 mm, rather densely many-leaved in upper part. Leaf sheaths tubular, 2–2.5 cm by 3–7 mm, densely minutely warty. Leaves subpatent, short-lived, rather thin-textured but stiff, keeled below, narrowly ovate, 6–6.5 by 1.8–2.3 cm, margins entire, apex acute, minutely apiculate. Inflorescences arising laterally, usually from leafless stems, densely 1–5-flowered, very short, subsessile; rachis c. 0.5 cm long. Floral bracts concave, ovate, 0.4 by 0.25 cm, minutely warty outside, apex acute-acuminate. Pedicel and ovary 2.2–3.5 cm long, narrowly clavate, terete, glabrous, curved at the base. Flowers not resupinated, c. 3.5 cm long (smaller when newly opened), widely opening, pendulous. Dorsal sepal ovate-elliptic, 1.25 cm by 6 mm, glabrous, apex subacute, minutely cucullate. Lateral sepals patent, obliquely triangular, 1.33 cm by 22 mm, apex subacute, minutely cucullate; mentum narrowly conical, 2.2 cm long, obtuse, apical 4 mm tubular. Petals narrowly obovate-oblong, 1 cm by 3.8 mm, margins smooth, apex broadly obtuse, minutely cucullate. Lip strongly concave, spathulate when flattened, 2.5 by 0.63 cm, when flattened 1.4 cm wide, with the basal 1.3 cm adnate to the column-foot, glabrous, without callus, apex cucullate, inflexed, 5-pleated, margins minutely serrate-laciniate, truncate. Column abruptly widened above the base, 0.45 cm long, clinandrium 3-lobulate, the lateral lobules triangular with a small uncinate apical tooth, the median lobule longer, narrow, tooth-like; column-foot narrowly linear, 2.2 cm long, at c. 4 mm below the apex with a bilobed appendage. Anther quadrangular, 2.4 mm long, dorsally slightly emarginate, in front truncate and minutely pubescent, otherwise glabrous. Pollinia 1.5 mm long. Fruit not seen.

Colours: Dorsal sepal and petals bright yellow. Lateral sepals bright orange, dorsiscopic margin bright yellow. Lip bright orange. Column pale orange. Anther greenish grey, pollinia grey. Ovary orange.

Habitat: Epiphyte on tree trunks in disturbed submontane forest with *Lithocarpus*, mostly growing in rather shaded places. Altitude 800 m.

Distribution: Papua New Guinea (Lake Kutubu), endemic.

Notes: This flamboyant and floriferous species of section *Calyptrochilus* is already common in cultivation, usually wrongly identified as *D. obtusisepalum* J.J.Sm., under which name it has been illustrated in recent years in several books and journals.

The real *D. obtusisepalum* is a different, orange-flowered high-altitude species, which we consider to be a synonym of *D. wentianum* J.J.Sm. Most of the species of section *Calyptrochilus* differ more in vegetative characters than in floral details, the flowers being often very much alike even in species with a very different habit. *Dendrobium wentianum* is easily distinguished from our new species by the elongated rhizomes, branching, pendulous stems, and especially by the short broad leaves that are reflexed. The flowers, on the other hand, are quite similar in size and shape. *D. wentianum*, however, has broadly rounded sepals, the lateral sepals do not open flat like *D. chrysopterum*, the petals are not cucullate at the apex, the column-foot lacks the bilobed appendage near the apex, and the flowers are uniformly orange or orange-red, not bicoloured.

Another species, which we consider to be even more nearly allied to *D. chrysopterum*, is *D.*

subclausum Rolfe. This is a very common and highly variable species throughout the mountains of New Guinea, although it was originally described from the Moluccas, where to our knowledge it has not been collected again. The common type of *D. subclausum* is a plant with branching stems, narrow, often almost grass-like leaves, bell-shaped flowers (because the lateral sepals are not spreading) that are about 2 cm long and often orange-and-yellow (like *D. chrysopterum*), petals with distinctly papillose margins, and finally a column-foot which lacks an appendage.

However, in 1986 Jeffrey Wood from Kew described *D. subclausum* var. *speciosum* J.J.Wood which differs from typical *D. subclausum* in having much larger flowers, c. 3.5 cm long, with spreading lateral sepals. We have been able to examine an isotype specimen of this variety (Reeve 548, L!), and found that there are hardly any differences with the flowers of *D. chrysopterum*, even the bilobed appendage on the column-foot is present. The only floral differences worth noting are that in *D. subclausum* var. *speciosum* the petals have papillose margins without a cucullate apex. The plants of the two taxa look very different, though. *Dendrobium subclausum* var. *speciosum* has narrowly lanceolate leaves, about 10 by 1 cm, while the stems are very slender and branching. It is not easy to decide the status of *D. chrysopterum* relative to *D. subclausum* var. *speciosum*. While our new species clearly falls well outside the normal range of variation displayed by *D. subclausum*, it could be argued that *D. subclausum* var. *speciosum* and *D. chrysopterum* are forms (perhaps subspecies) of the same species, which is distinct from *D. subclausum*. But even so, that species should still be called *D. chrysopterum*. The epithet *chrysopterum*, ''with golden wings', refers to the wing-like spreading orange-and-yellow lateral sepals.

Fortunately, this cheerful species has proved amenable to cultivation (unlike *D. wentianum*, for example). It can be grown under intermediate to moderately warm conditions in light shade. Plants of *D. chrysopterum* should not be allowed to dry out for longer periods, as they originate from a region with very high rainfall throughout the year (about 4700 mm). The scentless flowers last several weeks. Like most species of section *Calyptrochilus D. chrysopterum* is probably pollinated by birds.

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Eastern Underground Orchid Rediscovered at Alum Mountain, Bulahdelah, NSW

Ernest Slater originally found the subterranean plants of what was to be known as the Eastern Underground Orchid back in 1931 at Bulahdelah, New South Wales, growing with another saprophytic orchid, *Dipodium* (probably *D. variegatum*) that he had dug up. This unusual find ended up in the hands of the Rev. Rupp, who described this species after its collector, as *Cryptanthemis slateri*. Today it is now known as *Rhizanthella slateri*. Another species, *R. gardneri*, occurs in Western Australia.

This enigmatic species has been the subject of many searches, to locate specimens. As all the recordings to date have been by accident. It's a species I have always wanted to see, but the nearest I could previously get to it, were a couple of herbarium specimens in spirit.

In mid-May 2002, a thirteen-year-old boy, Evan Carrall, rediscovered this species on the lower slopes of Alum Mountain at Bulahdelah. Within days I was taken to this secret site to photograph what was there. Unfortunately the colony could be doomed if the proposed site for the Bulahdelah by-pass "Option E" goes ahead. We saw a number of developing flower heads, which should start blooming in a couple of months time. What was a greater interest to me was the discovery of three heads of seed capsules that appeared to be getting close to being ripe. There were numerous ants around the plants, plus numbers of fungus gnats, which are likely to be the pollinators. It's possible that ground birds, such as lyrebirds, could help distribute the seed, as the ripening capsules resemble berries.

David P. Banks

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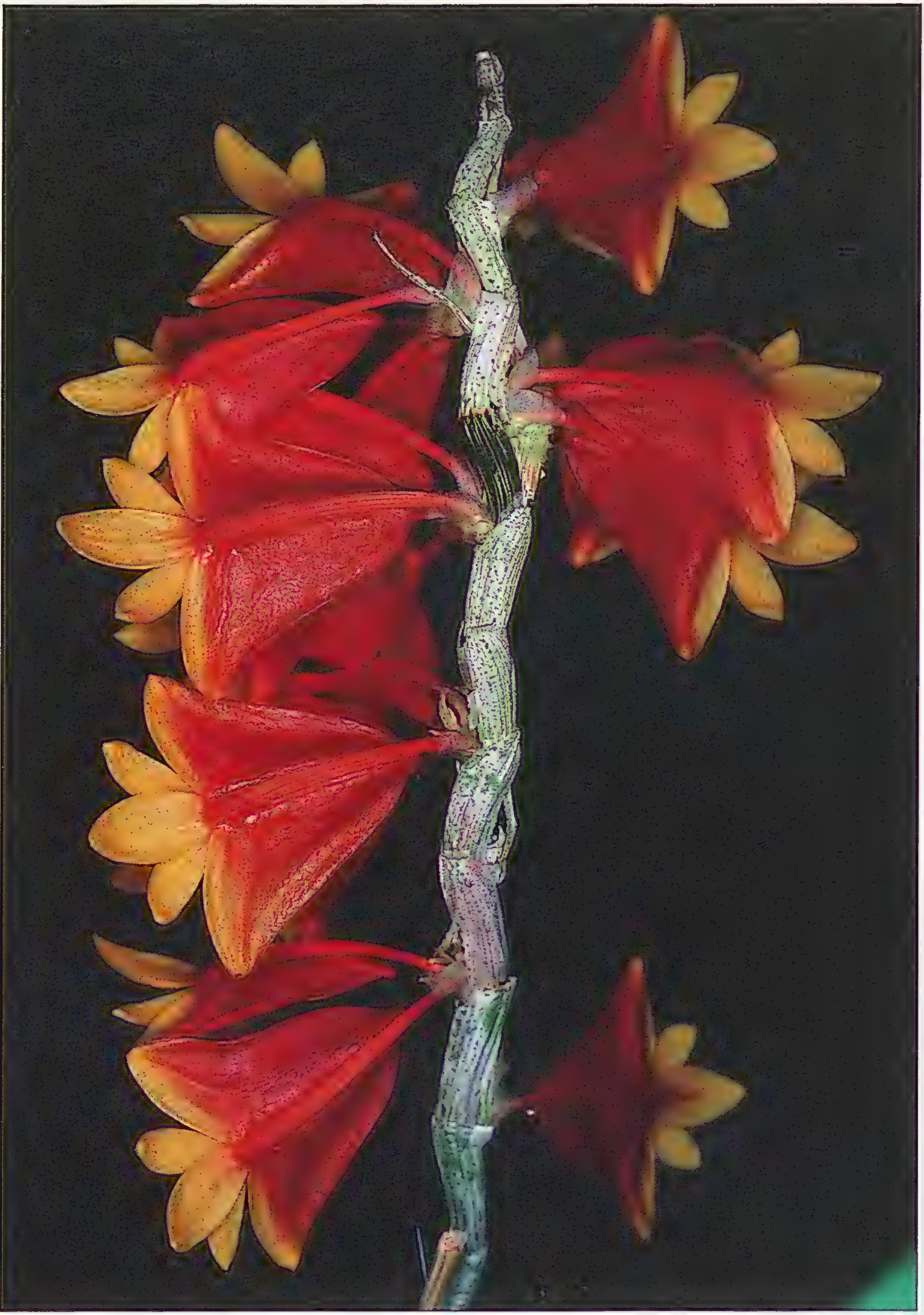

Grower, David P. Banks, Hills District Orchids D.P. Banks

Dendrobium chrysopterum

Vale: George Hermon Slade (14/7/1910 - 26/6/2002)

George Hermon Slade, known to all as Hermon, spent his life with orchids. From about the age of 12, Hermon started his collection that spans 80 years and many international boundaries. He had wonderful collections in Manly, New Guinea and Vanuatu.

He was a Foundation member of the Orchid Society of New South Wales and the first editor of the *Australian Orchid Review*, a Foundation member and a Patron of the Australasian Native Orchid Society, Governor of the American Orchid Society, Director and co-founder of the Australian Orchid Foundation just to mention a few societies.

Hermon by profession was an inorganic chemist with a love that covered all sciences, physics and botany possible most of all. He was classed a world authority on orchids with his friends that are scattered throughout the world held him with enormous respect.

He also had an enormous interest in the scientific world. So much so that he was a Foundation member of the Science Foundation of Physics, The Summer School of Science and the International Science School et al. He also donated substantial funds that went towards the building of the Pyramid Glasshouse at the Sydney Botanic Gardens. Not only will the family of Hermon Slade miss this wonderfully warm and caring person, but also the World will miss this generous and modest man.

Graham Slater
ANOS President

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G. Hermon Slade

Hermon has been the best of friends to me for the best part of a quarter of a century. Indeed, a great deal of my work at Kew could not have been undertaken without his support, both moral and financial. I first met Hermon in 1978 in Bangkok at the World Orchid Conference where he grilled me about New Guinea antelope and *Latouria* dendrobiums, which I had just begun to study, partly at his request. I am not sure that my skimpy knowledge of them at the time satisfied him at all. I did not get to know him well though until the spring of 1980 when Alistair Morrison and I visited him in Vila at the start of an intensive visit to study orchids in Papua New Guinea and the Pacific Islands, a trip part-funded by one of his trusts. Hermon was a wonderful host and entertained us royally at his house overlooking the bay in Efaté. That marked the start of a friendship that has endured until now and one that I have cherished.

Shortly after I returned from the Pacific, Hermon sent me photographs of several orchids from Vanuatu that had been selected by him to be depicted on a definitive stamp issue from the country. On checking in the Herbarium it was immediately clear that one of them, a *Dendrobium*, was misidentified. A further investigation suggested that it was furthermore an undescribed species. Jeffrey Wood and I had much pleasure in dedicating it to Hermon when we described it as *Dendrobium sladei* in the *Orchid Review* of 1982. We were subsequently pleased to see that Hermon had bought up large quantities of the stamp, so that letters from him for years afterwards always had the stamp on them but that he also used it on his visiting card, certainly one of the most distinctive I have ever seen.

I returned to Vila in 1990 with Marianne, my wife, on the last of three visits I made to the Pacific islands as part of a project to produce the first inventories of the orchid floras of the Solomons and Vanuatu, a project suggested and supported by Hermon. Hermon entertained Marianne in Vila while I went on an expedition to Espiritu Santo with Jos Wheatley. On our return to Vila, we found that Marianne and Hermon had been exchanging recipes and treating each other to gourmet meals while Jos and I had been forcing down pounds of rice throughout out a trip which proved botanically to be extremely productive. The first evening back in Vila, I vividly remember Hermon chasing a large black dog across his garden, the dog having grabbed the large and expensive fish that he had taken half-an-hour to de-scale and fillet. He did not catch the dog nor did we eat fish that evening!

Hermon was a remarkably generous man in many fields. I would like to tell you a little about his contributions to the world of orchids. Hermon's interest in orchids, the largest family of flowering plants, was one of the enduring passions of his life. He grew orchids as a hobby throughout his life and was a founder member of the Orchid Society of New South Wales and was instrumental in starting the *Australian Orchid Review*, being its inaugural Editor. For most people that would have been enough. However, Hermon's interests in horticulture and his scientific background led him to set up, with Gerald McCraith, the Australian Orchid Foundation (AOF). This is an enduring legacy that, for over 20 years, has helped many orchid scientists and horticulturists to undertake critical research on this spectacular, prolific and, as Hermon frequently pointed out, promiscuous family.

Almost every Australian scientist studying orchids has benefited from the AOF's support. Many of them have subsequently established international reputations in the orchid world. One of the most enjoyable expeditions I ever undertook was in 1983 to the Pascoe River and Iron Ranges in North Queensland with an AOF-funded group that included Bill Lavarack, David Jones, Bruce Gray, Neville Howcroft and Ben Wallace. Before we set off the AOF had a meeting in Townsville where I also met the board and Steve Hopper and Len Lawler, two other orchid experts who have played a significant role on the AOF research committee. The only new orchid species found on the expedition was subsequently named for Gerald McCraith. I am sure that the strength of Australian orchid research, and in world terms Australia is a major player, can be put down to the establishment of the AOF through Hermon and Gerald's foresight, determination and generosity in providing substantial funding for the trust.

The influence of the AOF has also stretched well outside of Australia. Hermon strongly supported work on the orchid floras of Papua New Guinea and the Southwest Pacific Islands where he lived for so long after he left Australia following his retirement.

My own work at Kew has benefited greatly from his support and generosity, especially through his own trusts and through the AOF. In particular, his support of Alec Pridgeon ten years ago led to Alec's employment by Kew on a joint project with the National Botanical Gardens, Canberra. That project led to many insights into the phylogeny and classification of Australian orchids. Subsequently, Alec was taken on as the second Sainsbury Orchid Fellow at Kew and has been running the groundbreaking *Genera Orchidacearum* project, which is providing the framework for a revolutionary classification of the orchids. Without doubt this important project would not have advanced so rapidly without Hermon, the Australia Pacific Science Foundation and the AOF's support at that early stage. Hermon's generosity is commemorated at Kew by his name being inscribed on the major donor's board in the Kew Guild Room in the Herbarium.

Whilst watching the recent Soccer World Cup, it occurred to me that Hermon, while undoubtedly a Ronaldo or Rivaldo when he was a young scientist and entrepreneur, developed into a Cafu or Ronaldinho in his maturity. He provided many opportunities for leading young scientists working at the cutting edge of their disciplines. Goals, or should I say scientific successes, have flowed as a result of his foresight ever since. Hermon has been a wonderful prompter, encourager and friend to generations of orchid researchers and orchid lovers and will be sorely missed by us all. However, I am sure that he would have been satisfied that his legacy to plant sciences in Australia and the neighbouring countries will continue in the capable hands of John and Paul through the trusts that he established.

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Rudolf Schlechter: His Life And Travels

D.G. Frodin
Ex. Department of Biology, University of Papua New Guinea (1972)

(Editors Note: I am not sure where this article was originally published, but it first appeared in 1972, marking what would have been the 100th birthday of this extraordinary orchidologist. Thank you to Darryl Smedley and Ruth Rudkin for providing me with these notes, which I feel may be of interest to those interested in the life of Rudolf Schlechter and orchid history. DPB.)

16th October 2002 will mark the 130th anniversary of the birth of the botanist who will be long remembered for his work in orchidology, and who was mainly responsible for revealing the seemingly endless variety of New Guinea's native orchids – Friedrich Richard Rudolf Schlechter, usually known simply as Rudolf Schlechter.

Although Schlechter died young, at the age of 53, a perusal of his activities and publications shows that he packed more into his scientific career than many do in a normal lifetime. In many ways, he epitomizes the German approach to research at that period – scholarship, thoroughness and perseverance. Not only is he remembered for his work on the orchids of New Guinea, but he also contributed papers on orchids from most of the rest of the world, many parts of which he visited in the course of his travels. He also contributed many papers on Asclepiadaceae and other families, especially those containing a large number of decorative plants. His two greatest works, however, are *Die Orchidaceen ihre Beschreibung, Kultur und Zuchtung*, first published in 1915, and *Die Orchidaceen von Deutsch-Neu Guinea* of 1911-14 (together with its *Figuren-Atlas* of 1921-28), which is in effect also a review of orchids from the whole island.

Yet, although Schlechter is best remembered for his orchid work, it was not primarily for this that he was sent on most of his expeditions, including the two to New Guinea. For many years he was in the employ of the Kolonial Wirtschaftsliche Komitee, which was concerned with economic development in the German colonies; Schlechter in particular was charged with the development of gutta-percha and rubber collection in Africa and New Guinea as cash crops for the local people. These ventures are now almost forgotten, particularly the one in the Madang District of New Guinea, where by 1941 it was in the process of becoming well established His extensive exploratory tours in connection with development of these enterprises also helped to make the German public more aware of their colonies, particularly New Guinea which had hitherto been regarded as something of a "hardship post" in contrast to German East Africa.

Rudolf Schlechter was born in Berlin as the third of six children of a lithographer. It is not to be wondered, therefore, where his talent for drawing came from: he was later to illustrate many of his own works. He was educated at the Royal Fredrick William Gymnasium (a selective classical secondary school) in his home city, but left before completing the Obersekunda (upper fifth form), perhaps because his restlessness was beginning to rub against the constraints of a rigid curriculum. His love of plants had already become manifest, and he immediately went into training as a horticulturalist. On completion of his training he went into service with Berlin University as a gardener.

However, Schlechter was not one to trample the same ground for long; he wanted to travel, to see living plants *in situ*. Thus, in November 1891, at the age of 19, he sailed for South Africa, where he entered the private service of Dr Harry Bolus of Capetown. While there, he made numerous excursions for the study of the Cape flora, especially on the Cape Peninsula and along the coast towards Natal; this was followed by a long trek into Transvaal, from which he returned to Capetown in 1894 (Jessop,1964). After further collections in Natal he left Dr Bolus' service in April 1895 and returned to Europe. As a result of interest expressed by Dr Hans Schinz of Zurich, the first set of some 7000 numbers went to the Botanical Institute of Zurich University. While in South Africa, Schlechter had already started to specialise in the

Asclepiadaceae and Orchidaceae and had begun to publish papers on these families.

On his return, he at once began preparations for a second trip to South Africa, this time in the company of his younger brother, Max. Sponsorship came from the Berlin Botanical Museum and other German sources. The brothers set off in the latter part of 1895 From Capetown, a number of collecting trips were made, including two in a Cape wagon with 10 oxen. In November, 1897, the brothers separated, Max settling in South Africa while Rudolf returned home via Mozambique, where he studied latex-yielding plants and had his first look at the luxuriance of tropical flora. He spent nearly four months in that colony, returning home at the end of April 1898.

Soon afterwards, Schlechter began his university studies in Berlin, mainly in botany and geology. Because of his already considerable scientific output, he was exempted from the Abiturient examen (matriculation examination). Amongst his teachers can be numbered Adolf Engler and Ludwig Diels, the last-named being an exact contemporary of Schlechter. During this time he also came in contact with Otto Warburg, an economic botanist and Orientalist who, during a four-year long Weltreise from 1885 to 1889, carried out extensive tropical studies especially in Indo-Malesia, including New Guinea. Warburg was by this time also active in the German Kolonial-Wirtschaftsliche-Komitee (the economic committee of the semi-official Deutsche Kolonialgesell-schaft) and editor of its journal, *Der Tropenpflanzer*.

At this time, demand for rubber was increasing rapidly and prices on the world market were high. The rapidly expanding industries of Germany required a reliable supply of rubber at a reasonable price, and it was only natural that they should look to the colonies as possible venues for a rubber industry. It is as well to remember that plantation rubber based on the Para rubber tree (*Hevea brasiliensis*) had not yet reached a dominant position and that latex was also being obtained from India-rubber (*Picus elastica*), Panama rubber (*Castilloa elastica*) and many other lesser-known sources. As the cost/price ratio was then relatively high, much latex was also collected from wild trees and vines. This led the Komitee to the idea that the collection of latex from wild and cultivated plants could be made into a cash-crop industry for native peoples in the German colonies.

The opportunities for further travel and collecting in the tropics, combined with an already demonstrated interest in latex-yielding plants led Schlechter to accept employment with the Komitee. He was to remain with them for the next fourteen years. He was not kept cooling his heels in Berlin for long. Without waiting to finish his university course, early in 1899 he sailed for West Africa, where he was to look into the possibilities of the collection and cultivation of *Kickxia* (Apocynaceae), the source of "silk-rubber", as well as other kinds of latex-yielding plants. He went to Nigeria, collected *Kickxia* and from there took thousands of seeds to the then German Cameroons, where the industry was to be developed. An additional 200,000 seeds were collected in the Congo for planting in the Cameroons. He undertook extensive botanical exploration in all these countries, as well as in Togo, which he visited on the way home. He returned to Germany in May 1900 after an absence of nearly 18 months. The results of this expedition were written up by Schlechter and appeared as Westafrikanische Kautschuk-Expedition 1899/1900 (Berlin 1900).

Only six months after his return he began his fourth overseas trip, again in the employ of the Komitee. This time it was to "Malaysia and the South Seas" with New Guinea as the main destination; it was called the Gutta-percha und Kautschuk-Expedition. His sponsors were looking for useful crops for the German Possessions there, as part of an attempt at economic reconstruction initiated by the Government, and – because gutta-percha was another product then in short supply, along with rubber – decided that these might be the basis for an important cash-crop industry. Before proceeding to New Guinea, Schlechter was instructed to collect suitable latex-yielding and other economic plants and trees in Malesia for cultivation in the new colony – a process already begun some years before by Richard Parkinson. He was also instructed to look for wild gutta-percha and latex-yielding plants in the colony.

Gutta-percha is a whitish substance chemically rather like rubber, but much harder; it has been used for such things as cable sheathing and for billiard and golf balls. Like rubber, its industrial uses were increasing rapidly, with consequent heavy demands on producing regions. There were hardly any plantations of gutta-percha trees at that time and there was widespread fear of over-exploitation of the wild-growing trees (*Palaguium* spp; especially *P. gutta*). In fact Willis (1931) notes that *P. gutta* had become extinct in the wild and is now only known from cultivated specimens.

Schlechter arrived in Singapore early in 1901, and used the Botanic Gardens there as a base for many exploration and collection trips to the Malay Peninsula, Borneo, Sumatra and Java. From all these places he collected numerous plants and seeds for cartage to German New Guinea; but he could get only a few plants and seeds of *Hevea brasiliensis,* as little material could be spared from a rapidly expanding planting program in Malaya. He finally sailed for German New Guinea in October, with the *Stettin* loaded to the gunwales with plants. Arriving at the capital, Herbertshohe (Kokopo) on the 21st, Schlechter was met by (Acting) Governor Albert Hahl who, for want of other space in the congested town, had all the plants stored behind the Residency!

Hahl gave Schlechter considerable material assistance and suggested an itinerary. However, he got short shrift from the Neu-Guinea-Kompagnie with regard to porters and finally had to recruit them himself from New Ireland. He visited the Ralum and Kuradui plantations of the Forsayth firm and Richard Parkinson, and, because the only hotel was not really fit for a long stay, Schlechter was invited by Mrs Kolbe ("Queen Emma") to stay at her famous residence, "Gunantambu" near Ralum, while he remained in New Britain. During this time Schlechter examined several possible sites for a botanic garden for the colony, but was unsuccessful. (Not until the development of Rabaul after 1907 was a suitable location found; this was the origin of the famous Rabaul Botanic Garden which survived until World War II.)

In the succeeding ten months, Schlechter explored southern New Ireland, the Finschhafen area and the Astrolabe Plain. From present day Madang he went inland with Wilhelm Dammkohler along the new Ramu access "road" along the Gogol and Nuru rivers to the Ramu gold-prospecting camp (between Faita and Usino) and on into the Bismark Range towards present-day Bundi, from which he saw Mount Wilhelm covered in snow. It was there that he discovered big stands of a native New Guinea gutta-percha tree, *Palaguium supfianum*, which proved, upon testing in Germany, to have a product of good quality. There were three cheers for Schlechter back in Berlin, for one of the main objects of the exercise had now been achieved.

It was now January 1902. Returning to Madang, he then climbed into the northwestern Finisterre Range. Later, he visited the Aitape area and Seleo Island off the coast, and made a deep thrust into the Torricelli Range, there discovering stands of Kauri (*Agathis alba*) and incense cedar (*Papuacedrus torriceliensis*) around Mount Sapau. During his trips there were several "incidents" with tribesmen: in the Bundi area he was forced to turn back because of a full-scale attack. On his Ramu trip Schlechter had a line of 90 men, including 10 police. It was now time to take his porters home. Returning to Herbertshe, he was met by the famous District Officer of New Ireland, Bulominski, and with him sailed for Kavieng for a trip down the east coast road, which to this day remains a memorial to the energetic German road-builder. Schlechter proceeded to the Namatani area and again collected in New Ireland's southern mountains before returning via the Duke of York's to the Gazelle Peninsula.

With his return to Herbertshe, Schlechter's first period in the New Guinea region came to an end. In addition to the importation of large quantities of economic plants, he had discovered a number of new latex bearing plants and amassed some 1100 numbers of specimens, including many orchids and Asclepiadaceae. A detailed account of his travels and work in Malesia and New Guinea appears in the form of several letters to Der Tropenpflanzer (1901-03); his botanical results made up a large proportion of Lauterbach's *Nachtrage zur Flora der Deutschen Schutzgebiete in der Sudsee* (Leipzig, 1905).

In August 1902, Schlechter left the German possessions for Sydney. Soon afterwards, in September, he proceeded to New Caledonia for a collecting trip of over four months' duration, supported by funds from the Berlin Botanical Museum which was anxious to increase its holdings of New Caledonian plants. In this time he managed to obtain nearly 1000 numbers and make observations on a few latex-bearing plants, none of them, unfortunately of much potential value. From New Caledonia he travelled home via Sydney, Melbourne, Fremantle and Colombo, arriving in April 1903.

Back in Berlin, Schlechter resumed his university studies, finally sitting for his doctoral examination late in 1904; his dissertation, published soon after in *Botanische Jahrbucher*, dealt with the plant-geographical position of New Caledonia. As already noted, he had been exempted from matriculation requirements on account of his already considerable research output. Following this he worked at the Berlin Botanical Museum, particularly on Orchidaceae and Asclepiadaceae.

In the latter part of 1905 Schlechter made his fifth over-seas trip; this, of short duration, took him to the Cameroons where he examined progress being made with the cultivation and tapping of Kickxia.

In late 1906 there followed the mounting of the second Gutta-percha und Kautschuk-Expedition to Malesia and New Guinea –Schlechter's sixth and final overseas trip. It was to last for over three years. The Kolonial-Wirtschaftliches Komitee had already decided in 1903 to follow up on Schlechter earlier reconnaissance of New Guinea and develop a native gutta-percha and rubber industry therein, based on the collection of latex both from wild growing and cultivated plants. The India-rubber tree (*Ficus elastica*) and Panama rubber tree (*Castillon elastica*) were already being cultivated, chiefly around Madang, by the New Guinea Kompanie since the 1890's and experiments with Para rubber (*Hevea brasiliensis*) were getting under way. But it was also desired to bring the natives into closer contact with the European economy, and to this end gutta-percha and rubber collection were regarded as suitable vehicles, for the produce would enjoy a guaranteed market in Germany. Schlechter, with his already considerable experience, was naturally chosen for the task of exploration, research and development. Be was also to advise on the development of the future Rabaul Botanic Gardens, for which a site had been chosen at the time the new township was being laid out. Governor Hahl was to provide Schlechter with a troop of police as well as other material assistance, and lay down general policy guidelines for the project. It is entirely possible that Governor Albert Hahl had some influence in the decision to set up a native latex industry; it was in line with his general policies on native economic development.

Financial support came from the Central Government, the Kolonial-gesellscraft and the rubber industry to the tune of 196,000 marks. This went into establishment of a research station and garden at Bulu, on the southern side of the Astrolabe Plain between Bogadjim and Bongu, training of natives in latex collection and in cultivation of the relevant plants, and exploration.

Schlechter left Germany in October 1906 and travelled to Herbertshe via Singapore, Jakarta (Batavia) and Manila, with side trips into Sumatra and Borneo to collect additional planting material, and botanical specimens. From the Padang Highlands in Sumatra came trained Malay assistants who were to help Schlechter in New Guinea. He arrived in the Protectorate in March 1907, and by the end of that month had set himself up in his research station at Bulu. This was to be his base for the next two years.

Schlechter explored extensively in the southern Madang District for gutta-percha and latex-yielding plants, also making big botanical collections in the process His shorter excursions are too numerous to go into here; details will be found in Loesner,Th.: *Rudolf Schlechters Leben und Wirken, Notizblatt Bot Gart* Berlin 9: 912-958 (1926). In 1908 he made two long trips; the first of these was made during the German-English border survey of the 8th parallel in the lower Waria Valley. On this occasion be was accompanied by Governor Hahl. Later in the year he went right across the Madang-Ramu divide and the Ramu River and up the slopes of Saugueti-Berg (Mount Otto) in the Bismarck Range to a height of about 2200 metres above sea level, but bad weather, over-extended supply lines and local unrest forced him to turn back without reaching the summit. Even so, this trip provided Schlechter with his first look at the upper-montane and cloud-forest flora, and it proved to be rich in orchids and other decorative plants.

In the same year, and again in 1909, Schlechter made three shorter trips to the north-west Finisterre Range; while later on in the latter year he undertook a second, longer trip to the lower Waria Valley, again partly in company with Governor Hahl who was undertaking an exploratory patrol of the middle and upper Waria Valley. Schlechter saw the grassy plains of this region from afar, but turned back without reaching them as they were not worthwhile and too high for profitable latex collecting. He did, however, discover valuable stands of the dipterocarp tree, *Anisoptera polyandra*, on the steep hills of the lower river (a feature characteristic of much of the southern Morobe District). His last long trip was to the Aitape area, where he again penetrated into the Torricelli Range along his route of 1902.

On all these trips latex was being collected for testing and sale on the German market, and the results were encouraging. After the completion of Schlechter's work, the industry began to develop, mostly in the Madang District, and by 1914 was beginning to make a significant contribution to the local economy. Alas! The Great War came, and with it, Australian occupation. The market immediately collapsed, and with it the entire rubber industry (Lawrence,1963). Nothing was left but great stretches of useless India-rubber trees and disgruntled producers.

The botanical harvest was to be more lasting, although it, too, suffered with the destruction of most of the collections of the Berlin Botanical Museum in World War II – but not before duplicates had been distributed to many other institutions. Over 4300 collection numbers were made, including hundreds and hundreds of Orchidaceae (and Asclepiadaceae). This represented the largest single collection made in New Guinea up to that time (although it was soon exceeded by Ledermann while a member of the great 1912-13 Sepik Expedition). It must be remembered that the botanical work was over and above his official duties connected with the gutta-percha and rubber enterprise! However, in his botanical collecting he was assisted by two Malays, Sikin and Takadu.
Three major publications were to result from his work in New Guinea: *Die Gutta-percha und Kautschuk: Expedition des Kolonial-Wirtschaftliches Komitee nach Kaiser-Wilhelms-Land* 1907-09 (Berlin,l911); *Die Orchidaceen von Deutsch-Neu-Guinea* (Berlin, 1911-14); and *Figuren-Atlas Orchidaceen von Deutsch-Neu-Guinea* (Berlin,1923-28). In addition, beginning in 1912, Schlechter was to contribute massively to the series *Beitrage zur Flora von Papuasien*, edited by C. Lauterback and appearing in *Botanische Jahrbucher*. These include accounts of Ledermann's Orchidaceae as well as revisions of New Guinean Cunoniaceae, Ericaceae, Gesneriaceae and Asclepiadaceae.

Schlechter left New Guinea for the last time in October 1909, and after short trips in southwest and northeast Celebes (now Sulawesi), and later North Sumatra, returned via Colombo (now Sri Lanka) to Europe, arriving home in May 1910. So ended his period of Sturm und Drang. He had been almost constantly on the move for more than 18 years; henceforth, he travelled no more, except to herbaria in various parts of Europe. Soon after his return from New Guinea, Schlechter married Alexandra Sokennikoff (for whom he later named *Dendrobium alexandrae*), daughter of a Russian tea merchant, and they had two daughters. In February, 1913, he was appointed Assistant at the Berlin Botanical Museum and remained there until his death, except for war service. During the World War, he was awarded the Iron Cross, Class 2, for valour.

In the latter part of his career, Schlechter devoted more and more attention to the Orchidaceae. He was in constant contact with colleagues and collectors on all sides, thus securing an unceasing flow of new material for study. In addition, the first set of his own collections made during service with the Komitee, Orchidaceae included, went to the Museum in 1913, along with all his drawings, field books, etc. These represented the tangible results of his long years of field work; indeed, few, if any, other people at that time had had as much direct experience with wild orchids as he. To facilitate his studies, he made a card-index (Kartothek) to all known species of the family. Numerous scientific papers, some short, some long, flowed in an endless stream from his pen (the complete list, covering his whole career, fills some twenty pages in Loesner's necrology). Besides revision of many genera or groups of genera, he contributed papers on the orchids of China, Japan, Sumatra, Celebes, Madagascar, Africa, Central America and northwestern South America. The crowning work was his famous *Die Orchidaceen, ihre Beschreibung, Kultur and Zuchtung* (lst.ed., 1915; 2nd ed. 1927; 3rd ed. Now in press{?}), often known simply as Der Schlechter.

Schlechter became recognised as one of the best German experts on the flora in the Old World tropics, and his sudden death on 15 November 1925 was a great blow to all. He was an extremely energetic and thorough-going scientist and man, with a very strong will, and with the persistence to get his way in spite of obstacles. Although the effects of his many bouts of sickness in the tropics, including numerous attacks of malaria, blackwater fever and dysentery began to weaken him in his last years, he continued to persevere and was active up until a few days before his death. Some time before, he had also set himself the goal of describing one new species every day. It was said of him that he used to become agitated if he suddenly realised that it was past noon, and he had not yet described his latest novelty! In-such ways did he increase the known total of orchids in German New Guinea from 90 species in 1901 to 1450 species in 1914. In his definitive work on New Guinea orchids alone, there are 1102 species described for the first time. (The English translation is still available from the Australian Orchid Foundation.)

Schlechter's British colleagues saw him also as a tireless worker. As a young man, he was said to have a great capacity for work, a remarkable memory, great ambition and considerable self-confidence. A. B. Rendle has told us that Schlechter considered that "without a good memory it was no use trying to be a botanist; one had better give it up and be a merchant". John Hutchinson, of Kew, remembers meeting him during a visit to Berlin and told me that he was a very systematic and industrious worker, with also a strong penchant for good beer; he always had a stein at his workbench. However, it is also said that, on his visits to Kew and the British Museum (Natural History), he "trod on one's toes and was no respecter of persons or things," although always interesting.As a result of changing technical, economic and political circumstances, Schlechter's official work on latex-yielding plants in New Guinea and Africa has been almost, if not completely forgotten; but it will be as a botanist, and especially as an orchidologist, that he will be remembered throughout the world – work which, with few exceptions, was entirely a sideline under the conditions of his employment in the field.

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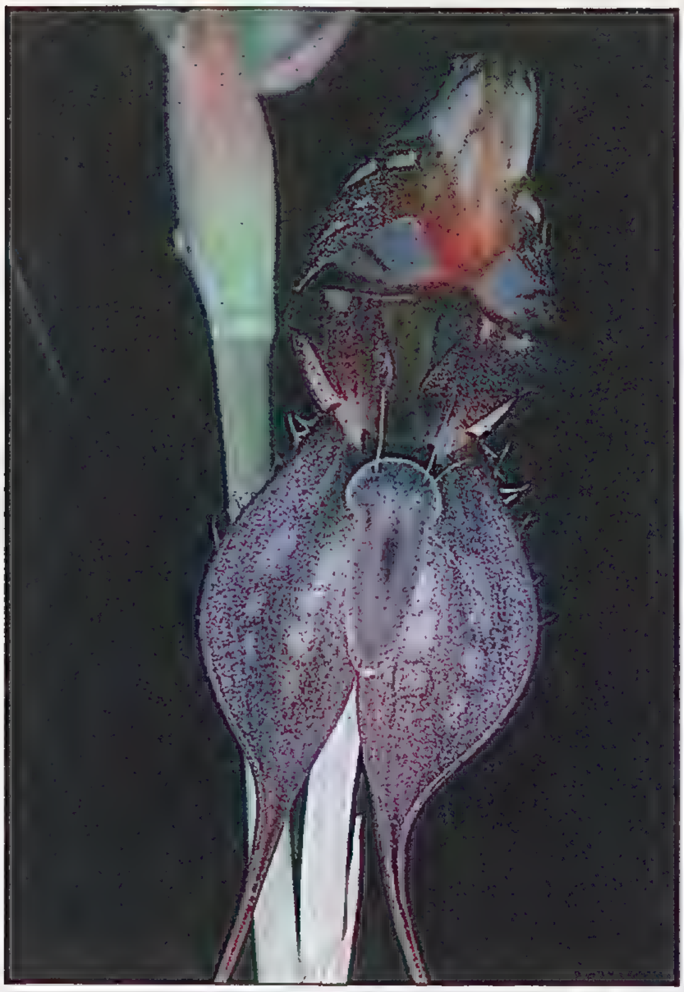
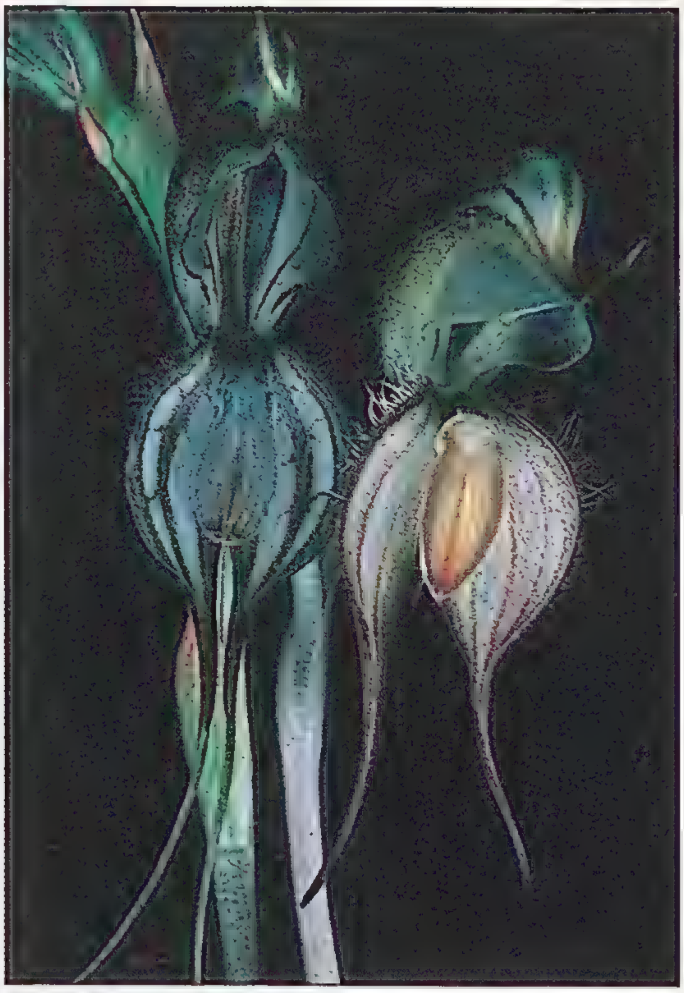


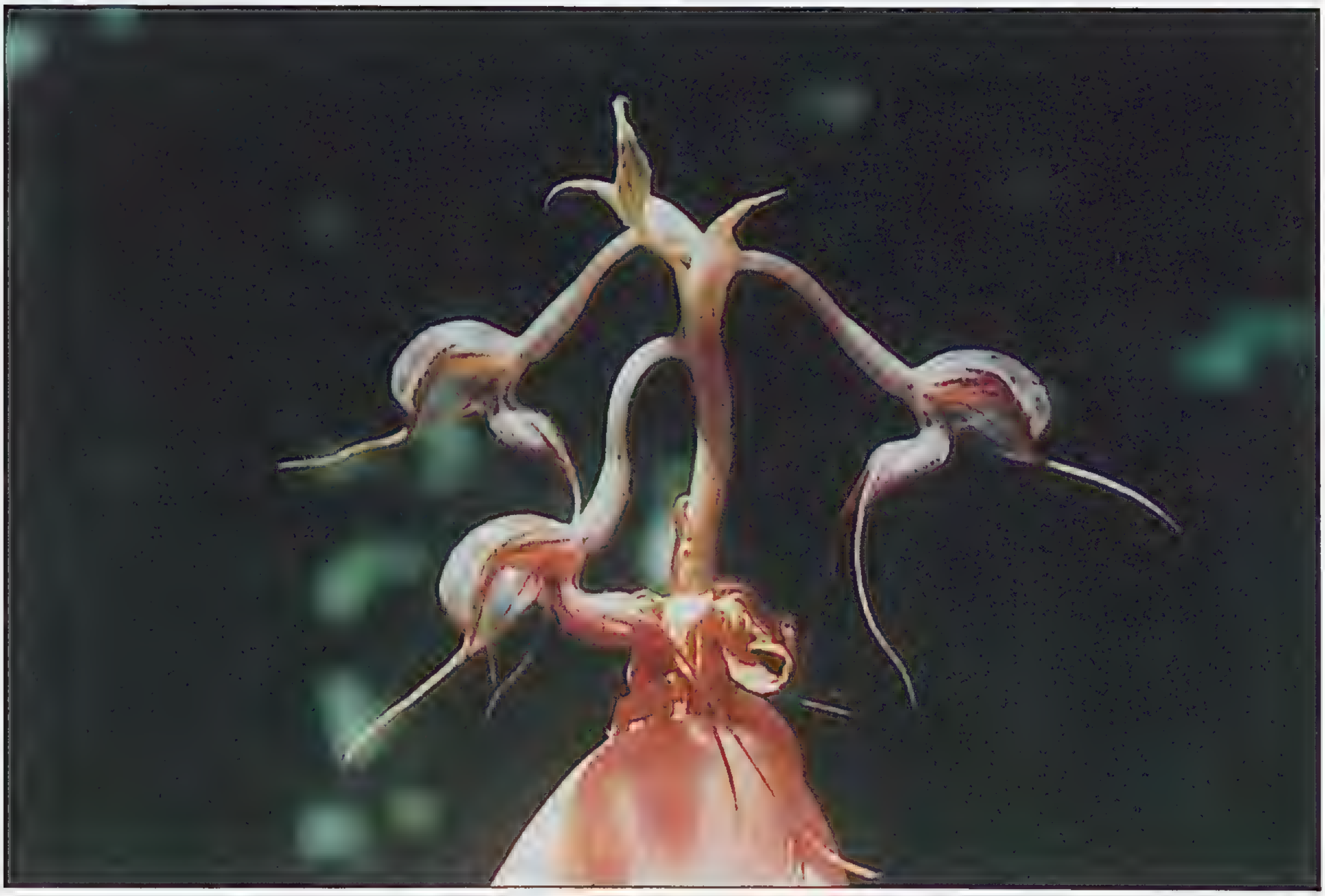
R. Bates

Pterostylis excelsa from the Gawler Ranges, SA.



R. Bates

Two forms of *Pterostylis biseta* from near Adelaide, SA.



R. Bates

Pterostylis despectans, removed from soil but continued to flower without water.

The "Rufa Group" *Pterostylis* of South Australia

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The so-called 'Rufa Group' alliance of *Pterostylis* are a unique group of greenhoods, largely restricted to dry areas or sites prone to long periods of dry conditions. They range across southern Australia from the Indian Ocean to the Pacific Ocean and extend in small numbers as far as North Queensland.

Pollination:
The 'Rufa Group' *Pterostylis* (based on taxa related to *P. rufa*) differ from other greenhoods in having the lateral sepals curved downward, the labellum exposed outside the flower, not within the hood as in true *Pterostylis.* They all have an irritable, highly mobile labellum, usually with marginal hairs, cilia or setae. When triggered by the light touch of a tiny pollinating insect (a mycetophilid fly) the labellum springs up, throwing the insect into the dorsal hood. This hood has transparent patches which allow light in, thereby guiding the insect upward and out of the flower through the column wings, past the stigma so that any pollinia already on the fly are glued on, then past the anther where pollinia from this flower are picked up by any stigmatic glue and attached to the insect, ready to be transferred to the next flower.

Some authors believe that there is some sexual attraction, that pheromones are released by the flower to attract insects to a mate and that the hairy labellum is an actual insect decoy. There is no doubt that some volatile chemical attractant is emitted by the flowers but whether this is pseudosexual or even pseudo-antagonistic has yet to be proved.

Are they really greenhoods?
'Rufa Group' *Pterostylis* differ from true *Pterostylis* in never producing long dropper roots so that they do not form clonal colonies like many of these these greenhoods. Most species therefore exist in nature as often-isolated individual plants. They remain throughout their life much more dependent on their mycorrhizal association with soil fungi. They are even suspected of using different soil fungi from true *Pterostylis.* Consequently they are not easy to cultivate and can only be increased in cultivation by 'tuber removal' or flasking of seed.

Electrophoretic studies or DNA testing has shown 'Rufa Group' *Pterostylis* to be genetically rather different to other greenhoods. Some botanists regard them as belonging to a separate genus.

Drought resistance:
As many of these species occur in the drier parts of this the driest state in the driest continent they are certainly not your average orchids!

All species exhibit drought resistance or drought avoidance strategies including:

1: Necrophily ie loss or shrivelling of leaves once the short growing season has ended and flowering has begun.

2: In the more arid areas plants can only be found in moister microhabitats such as on the south side of bushes, at the base of rock slopes or in soil with moisture retentive qualities (but usually not in areas prone to flooding or permanently damp, like springs)

3: Waxy leaves, stems and flowers which do not allow moisture loss but which can assimilate overnight dew into the plant.

4: Large tubers, which usually weigh more than the rest of the plant, swell rapidly after rain and do not lose moisture over the 7-10 month dry season. No mean feat; as the tubers are usually shallowly buried with surface temperatures often exceeding 50 degrees Celsius in summer.

5: The ability to store food and moisture reserves in the fleshy scape so that even when picked or pulled up plants may complete flowering and seed production. They are so good at this that plants with the new tuber removed and then placed in a plant press are capable of forming a new tuber as well as a fat (albeit flattened) seed-pod.

The species
About 20 years ago it was thought that there were about ten species in the complex

throughout Australia, but recent extensive field work in all states suggests there may be ten times that number! How could botanists have missed them in the past?

Some of these species are cryptic, flower colour matching the background soil and vegetation. Some hide their flowers in the branches of a low shrub or even on the ground hence there are very few collections in herbaria. Some seem to be sister species looking very similar to the common species of the area but occurring as few, far-spaced individuals. Such species are less likely to be eaten by grazing animals but have to be very good at attracting their pollinators.

Presumably each species has its own specific pollinator although in disturbed areas hybrids do occasionally appear.

Many of the hundred or so species are so rare that they appear restricted today to a single isolated hill or rock outcrop. An example is *Pterostylis* "Mt Olinthus". Others range over vast areas of our sandy deserts, such as *P. xerophila*.

Most were much more widespread and common before settlement but with their shallowly buried tubers were easy prey for the sheep, goats, cattle, wild pigs and rabbits which have often reached plague proportions, especially in times of drought when in desperation these animals may have dug up every tuber they could find.

Some species are restricted to a particular soil type, some only grow on red sand others only on white sand (*P.* aff. *biseta* "Sandy Creek"); some like *P.* aff. *maxima* only on clay; some species will only grow on laterite, or quartz, others only on granite like *P. ovata*. Some species like *P. arenicola* are purely coastal whilst others only grow well inland. There are species that flower as early as July (Pterostylis "Halbury") and others that flower in December (*P.* aff. *despectans*). There are species which can survive flooding for short periods, like *P. cheraphila* but most species rot very quickly when over-watered in cultivation.

Some species like *Pterostylis biseta* are extremely variable, others like *P. despectans* are very constant. Species like *P. pusilla* do well on limestone, others need acidic soils. I have even seen plants growing epiphytically in the lower forks of large gum trees in the Flinders Ranges or hanging from the underside of a rock overhang at the entrance to a cave. Near Venus Bay, plants grow on a large boulder on the beach while the summits of all the tallest peaks in the northern Flinders are home to various "Rufa Group" species.

The Thrill of the Hunt

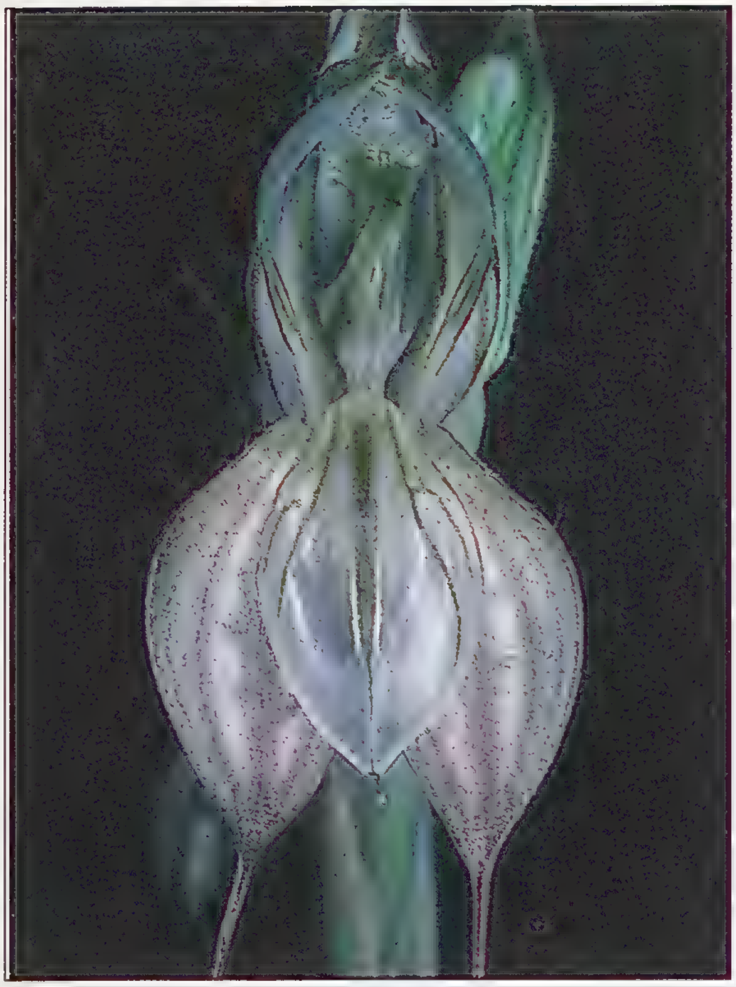
It is often suggested to me that it must be exciting to 'find a new species', but really the thrill comes from getting into the Outback, into a new area, tackling the 4WD tracks or mountainous areas which have to be walked with backpack, areas which are completely unpopulated. There is something very special about sitting by the campfire under a brilliant starlit sky knowing that there is no-one within 50km and that the orchids you find the next day may be new to science.

There is also danger involved and the orchid adventurer has to be prepared, especially when geographically misplaced, or in times of vehicle breakdown, to walk the 50km to the nearest homestead for help. It is certainly wise to let the station owners know what you are doing before you enter! I once had the dubious thrill of police in a helicopter dropping into my camp after reports of a lost traveller.

The best-known species:

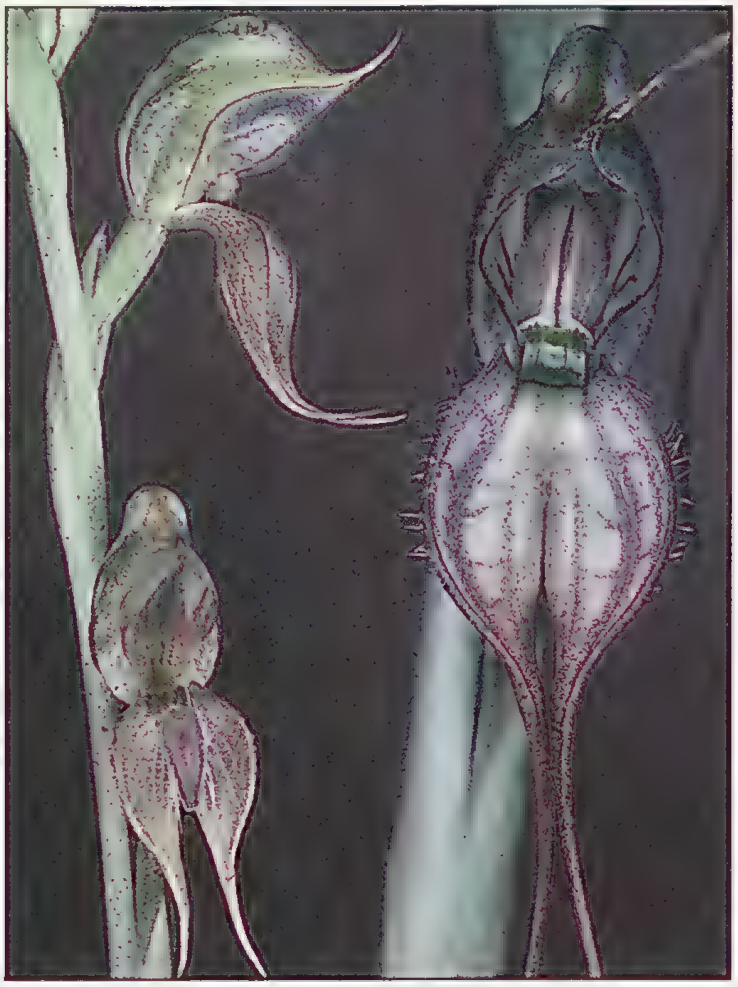
Pterostylis despectans is one of the most sought after species because of its bizarre habit of placing its flowers on the ground. This suggests an attempt to avoid browsing animals, or perhaps even a flightless pollinator. Another strange feature of the species is its habit of waiting a month or more after leaf senescence to begin flowering.

This species, which favours hard soils in open woodland was thought to be close to extinction but recently several large colonies have turned up and further searches may reveal a much happier picture. There are also one or two related species in South Australia yet to be named.



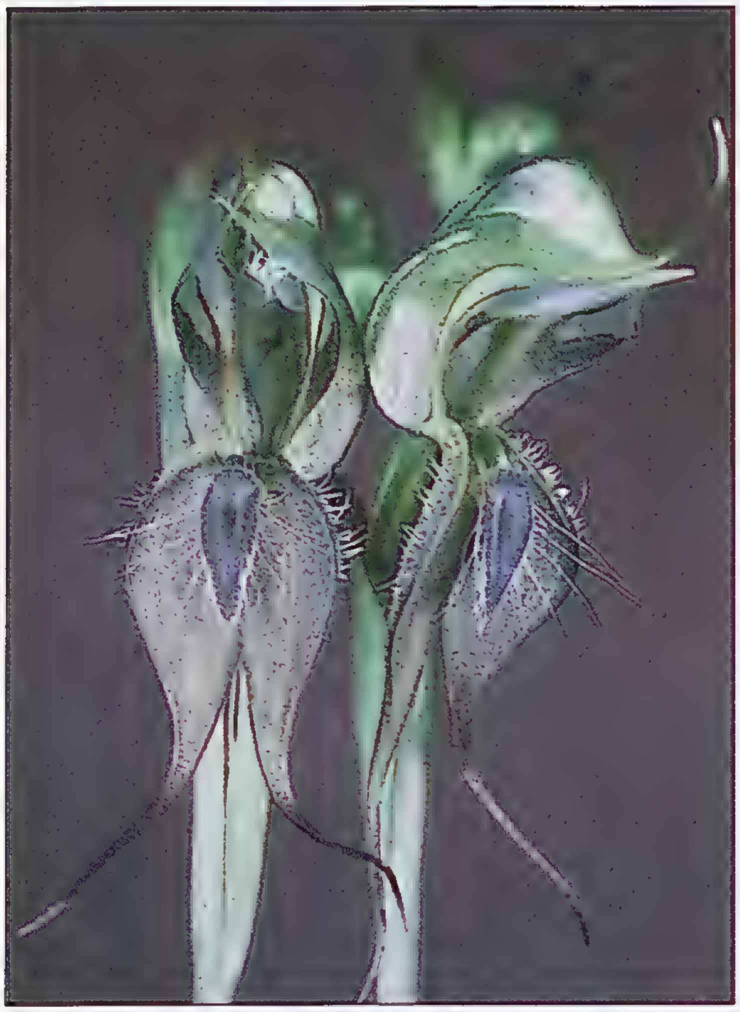
R. Bates

Pterostylis biseta, bizarre petaloid form Cockatoo Valley, SA.



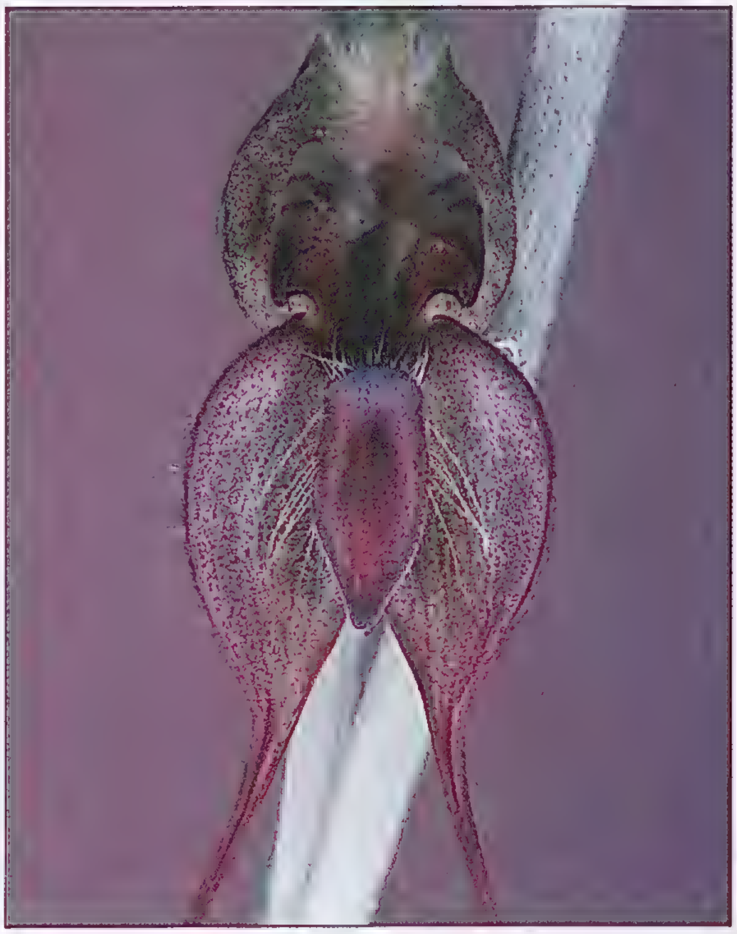
R. Bates

Form of *Pterostylis biseta* (right) from from Yunta, SA with labellum in the triggered position, next to a smaller undescribed species



V. Litchfield

Pterostylis cobarensis, the most common form from near Broken Hill, NSW



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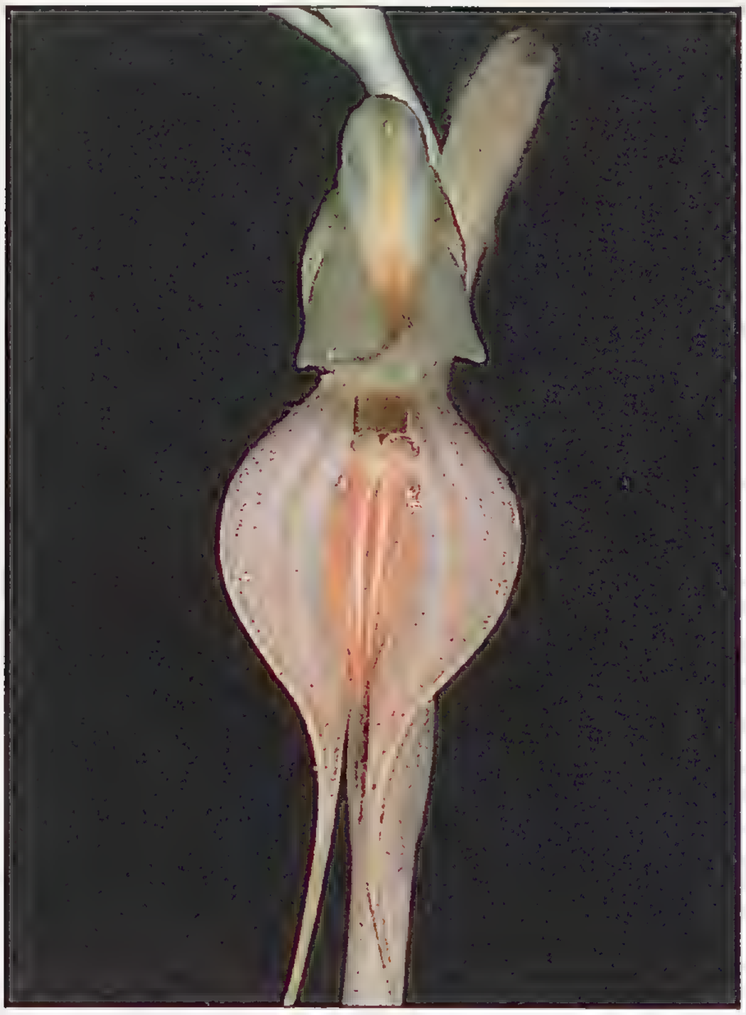
Pterostylis* sp. aff. *lingua from Old Boolcoomatta, SA.



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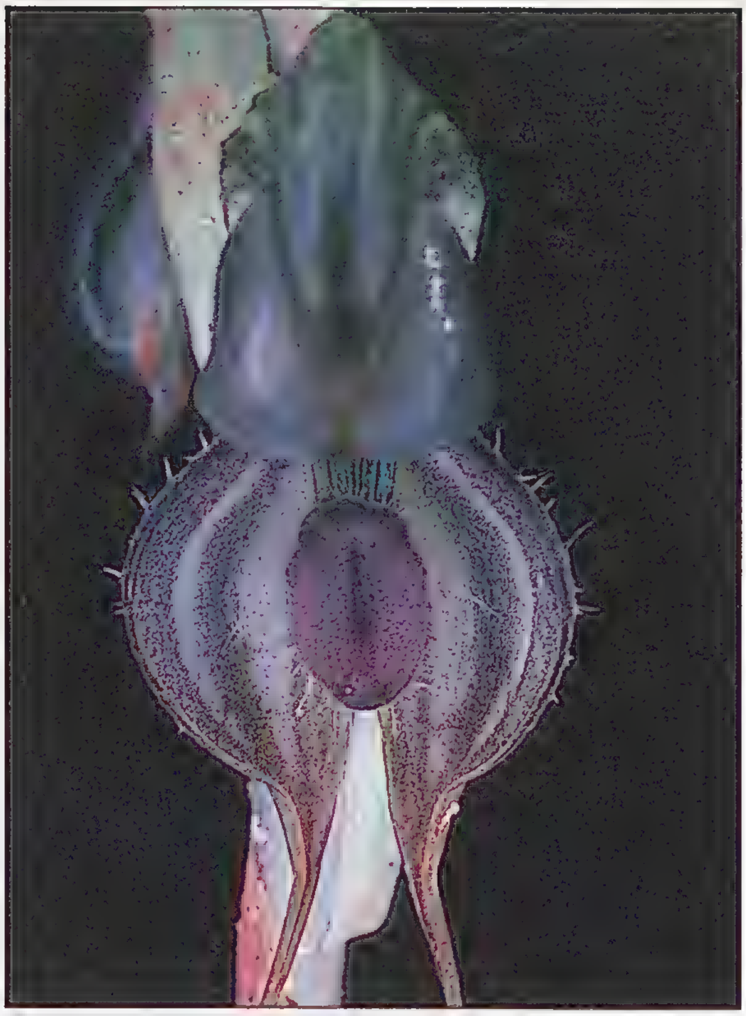
Undescribed *Pterostylis* sp. "A" from Scrubby Peak, SA.



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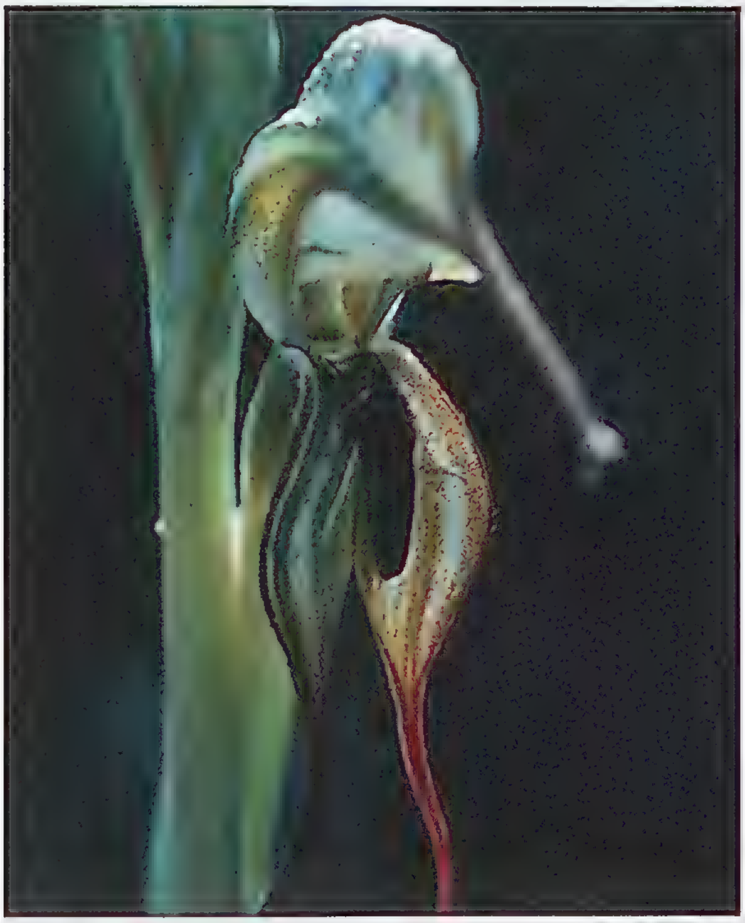
Undescribed *Pterostylis* sp. "B" from Scrubby Peak, SA.



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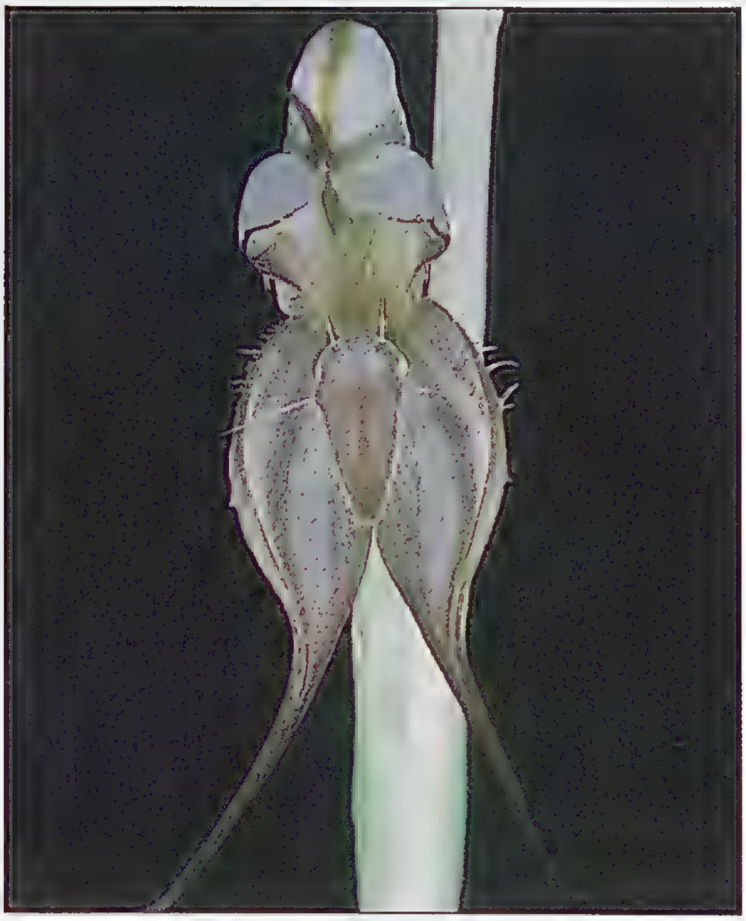
Undescribed *Pterostylis* sp. from desert country near Gammon Range National Park, SA.



R. Bates

Undescribed *Pterostylis* sp. from near Arkaroola & Mt. Fitton in the Finders Ranges, SA. Confined to rock ledges and cracks in boulders.

Pterostylis excelsa is the tallest species, reaching to 80cm. The large rosettes are frequently encountered in the mallee but it is not until after all other mallee orchids are finished flowering that the *P. excelsa* bloom. There is a wide range of colour in the flowers from verdant green to purple/black or reddish. Each flower only lasts a few days but with up to 20 on the stem, flowering may extend over 2 months. (This is also true for most of the species) There may be as many as a dozen species in the *P. excelsa* complex and these range from the Western Australian border to the northern tip of the Flinders Ranges (in SA) and across to Victoria.

Pterostylis boormanii is sometimes called 'Sikhs whiskers' thereby reflecting some of the history of the outback; this is another long flowering species. In 1999 I marked a plant, which opened its first flower on September 5th and still had the top flower open on November 20th. *P. boormanii* can be recognised by its very broad thickened edges to the base of the lateral sepals which are often beset with whiskers. There are several similar species in the "*boormanii* complex" in South Australia, which will hopefully be named soon.

The ***Pterostylis biseta*** complex. This complex is the most confusing of all. Each habitat seems to have its own "*biseta*". All of the species have the pair of bristles at the base of the labellum, which first suggested the name. Some species such as *P. ovata*, *P. maxima* and *P. planulata* have long been sorted out but still in South Australia there are early flowered *biseta*, late flowered *biseta*, broad labellum species, narrow labellum species, taxa with the lip set high and taxa with the lip set low. There are hairy forms and glabrous forms. Only when you have more than one species growing in the same area are they easy to separate. Someone once gave me a *P. planulata* flower without telling me where it came from and asked me to identify it. Needless to say I gave the wrong answer.

There is a lot of DNA study needed here and a desperate lack of understanding of the pollination ecology of the whole complex. Unfortunately many species may become extinct before we get around to working them out.

The ***Pterostylis cobarensis*** complex. This is the typical "Rufa Group" species of western New South Wales, but once the South Australian border is crossed there seems to be a proliferation of forms to suit different soil types. True *P. cobarensis* has small flowers with long silky hairs on the labellum margins and that form is common along the Barrier Highway. But there are many forms with short non-sericeous hairs and some with quite unusual shaped flowers, especially in or near the Flinders Ranges and these are likely to be named in the future as separate species.

Pterostylis lingua is more widespread in New South Wales, but does enter the area north of the Barrier Highway in South Australia where it occurs in fertile gullies between large rock domes, such as on Old Boolcoomatta Station. It can be recognised by its rather large labellum, which matches the specific name (*lingua*: meaning a tongue).

Pterostylis pusilla is small flowered species with short segments. *P. pusilla* is one of South Australia's most widespread orchids simply because it favours calcareous soils and mallee and we certainly have a lot of that. It is also the smallest flowered "Rufa Group" species. But there are similar species from acidic sand-plain, rock outcrops and from the high rainfall Adelaide Hills, each a likely species in its own right.

Pterostylis xerophila The name means "desert loving" and this is appropriate as *P. xerophila* occurs right out in the Great Victoria Desert, although it seems to be disappearing there due to rabbits. Typically the species is found around rock outcrops, which stick out of the sand in places including Wynbring, the edges of the Gawler Ranges, and Mount Finke. It also extends right across South Australia on Eyre Peninsula and into the low rainfall areas of northwestern Victoria. This is a scarce species and at no site is it common.

Pterostylis arenicola The name *arenicola* means sand loving and this locally endemic species grows mostly under native pines on coloured sandhills near the coast including on a golf course near the centre of Adelaide!

Pterostylis setifera This species, which is more common in New South Wales, has only been found at two sites in our eastern border districts and is not closely related to any other species.

Other species

Other species occur, including a dwarf taxon related to *P. woollsii* that has been reported from the Everard Ranges, which I have never seen. There are also undescribed species that are difficult to place in any of the above groups.

There are still many areas of the outback that are yet to be explored botanically, but sadly the 'Rufas' may be gone before we get there. We have probably already lost as many as a dozen species from specialized habitats, which have long since been cleared, ploughed up or over grazed.

Acknowledgements:

I would like to thank orchid experts: David Jones, Mark Clements, Jeff Jeanes and others who have helped me sort out the complex. I am grateful to the AOF, (Australian Orchid Foundation) who have helped to fund some of this research in South Australia. Thank you also to Kerry for support and to the members of NOSSA for companionship on field trips and for sharing their knowledge and photographs.

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Dendrobium fleckeri

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This Australian native species is restricted in nature to mountain forests between Innisfail and Cooktown in northern Queensland.

One might therefore imagine that it needed to be grown in a heated glasshouse in Melbourne. However, because it is found only at altitudes above 1000 m in nature, it grows quite happily in a 'cosy' shade house in Melbourne, where it usually flowers from late November to January.

D. fleckeri has slender, furrowed pseudobulbs about 300 mm long, each carrying two or three leaves. Its inflorescences each carry up to three apricot-coloured flowers about 30 mm across. The flowers are easily recognised by their fringed lip, which also bears three keels.

David Jones' *Native Orchids of Australia* states that plants rarely flower profusely but my plant bears a respectable number of flowers in November and December each year, although not all open together. The plant, potted in my usual native orchid mix of bark and river pebbles, is hung in a shady spot in my shade house, where it is fully exposed to passing breezes.

Although not as spectacular as some of its southern cousins, *D. fleckeri* has the advantage that it flowers long after the others have dropped their blooms. It's a worthwhile addition to any collection of *Dendrobium* species. It has been hybridised with many other Australian *Dendrobium* species, the best-known hybrids being *D.* Sunglow (x *D. speciosum*), *D.* Hastings (x *D. kingianum*) and *D.* Golden Glory (x *D. tetragonum*).

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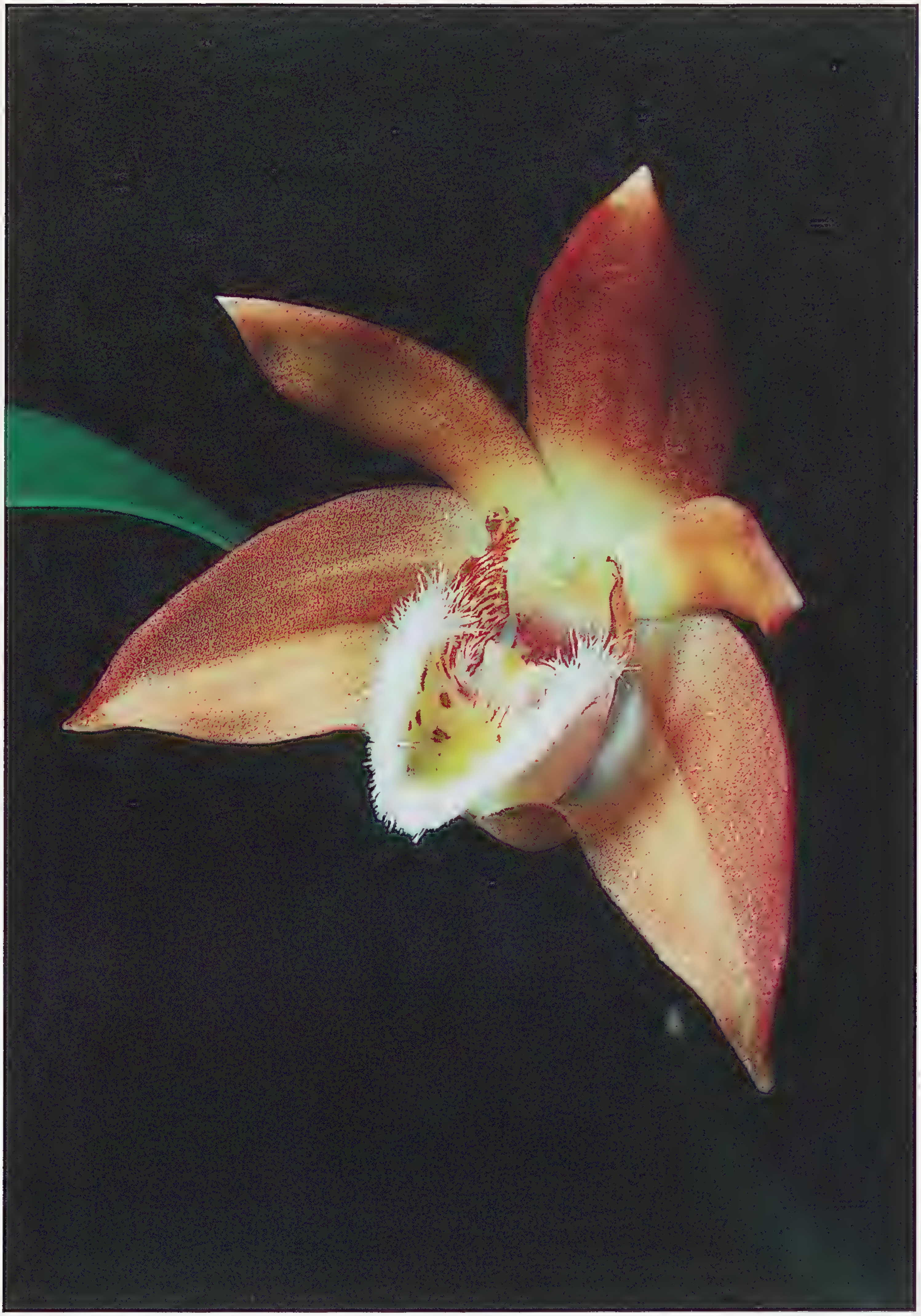

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Dendrobium fleckeri

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Catalogue of Australian Orchidaceae, M.A. Clements.

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Australian *Sarcochilus* Hybrids

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There have been major advances made over the past decade in developing fresh breeding lines within the genus *Sarcochilus* and also with the introduction of related genera such as *Plectorrhiza, Pomatocalpa, Peristeranthus* and *Rhinerrhiza.* Many of these plants have unusual and unique colours that often enhance mainstream *Sarcanthinae* hybrids. There has also been limited work done with combining *Sarcochilus* with some of the Asiatic species, in an effort to produce "tropical" looking flowers on compact, cooler growing plants.

Most of the *Sarcochilus* hybrids in collections are basically combinations including one or more of the lithophytic species such as *Sarcochilus hartmannii, S. fitzgeraldii* and the pink *S. ceciliae* or its darker relative - *S. roseus.* True *S. ceciliae* is restricted to central and northern Queensland (the Type site is at Castle Hill, Townsville), whilst the pale pink species found further south is referrable to *S. eriochilus.* This type of breeding has led to a 'sameness' in that a lot of the progeny have white or pale pink blooms with varying degrees of reddish-purple in the centre of the flower.

These hybrids are very easy to cultivate in pots of a course mixture. We use a mix of 2 parts medium grade treated pine bark, 1 part of pea size gravel and a handful of perlite. Many growers have also had success growing some of the vigorous *Sarcochilus* in live *Sphagnum* moss. They can be grown in a simple shadehouse, but will often grow a lot stronger if grown in a cool glasshouse or at least a shadehouse with a fibreglass roof. They appreciate at least 70% shade. In fact many growers utilise two layers of this during the warmer months. They will take cool/cold conditions - almost down to freezing, but need protection from frost. *Sarcochilus* do not appreciate excessive heat in summer; during these times keep them moist with good air circulation. High humidity during these times is essential.

The lithophytic species generally have round flowers with wide segments, and apart from the delightful Orange Blossom Orchid - *S. falcatus* most of the epiphytic species have been largely ignored.

I believe there are three main reasons for this; The other epiphytic species with the 'classical' shape (eg *S. hillii* & *S. minutiflos*) have quite tiny flowers.

Some of the more colourful species such as *S. australis* & *S. dilatatus* can be difficult maintain in cultivation and don't have the round shape that our judging systems tend to prefer.

Many of these epiphytic species are reluctant to produce side-growths, and continue as one growth, so the plants rarely develop into specimen size.

The species that have been largely responsible for the dark colours have varying degrees of brown in their flowers. When these are crossed with pink flowers or flowers with colour in the centre (such as *S. fitzgeraldii* & the 'Numinbah Valley' forms of *S. hartmannii*), the colour is intensified. The main problem when using *S. fitzgeraldii* as a parent is its unstable colour. Even line-bred plants rarely have two blooms the same on the inflorescence. Many growers find this appealing, but it certainly is a fault as far as judging is concerned as our standards dictate uniform flowering. The intensity of colour increases along the spike, sometimes to the point that the end flowers do not even closely resemble the first that opened. Many of the so-called "red" *S. fitzgeraldii* do not bloom the same every year. They may be solid deep pink one year and blotched with white markings the next. Many photos of "red" *S. fitzgeraldii* are shot of the last flower, in close-up, which often does not give the complete picture, if you know what I mean.

The lithophytic species still have a very important part to play and some bright colours have been seen in hybrids such as *S.* Cherie (*S.* Fitzhart x *S. fitzgeraldii*), *S.* Duno Nickys Twin (*S.* Nicky x *S.* Fitzhart), *S.* Heidi (*S.* Fitzhart x *S. hartmannii*), *S.* Hot Ice (*S.* Cherie x *S.* Heidi), *S.* Melody (*S.* Melba x *S. fitzgeraldii*) and *S.* Pinky (*S.* Mavis x *S. hartmannii*). These lithophytic species also impart vigour to their progeny and make them more suitable for pot culture.

It must be remembered that the epiphytic species, and *S. fitzgeraldii* for that matter, do not grow upright. The plants in the main have downward facing leaves, so water passes over the leaves to avoid it sitting in the crown of the plant that could lead to rot, which may take the plants life, and very quickly. So study the growth habits of seedlings with epiphytic parents, don't insist they all grow upright, as it is unnatural for them. Many growers use small wooden baskets, suspended and slanted at a 45-degree angle, to accommodate such plants.

There are only very few third generation hybrids around at present. Unfortunately there appears to be some genetic barriers to overcome before we can move further ahead. The problem may lie in the fact that we have created races of triploids that are proving sterile. Chromosome counts should be undertaken to increase our knowledge and understanding in this field to help solve this potential problem.

One down side of many of these hybrids is their reluctance to produce side-growths. This is simply because most of these epiphytic monopodial plants don't 'keiki'. This will often only happen if a grub comes along and eats the centre out of the plant. You curse at the time, but often the plant will regenerate with two or three new growing points. I don't know of many growers game enough to pull the centre leaf out though! To consistently produce hybrids with a tendency to clump, the species *S. hartmannii* and *S. fitzgeraldii* need to be injected into the breeding programme.

I will now briefly discuss the main species being used to create these new hybrids and new colours. Three of the *Sarcochilus* species, namely *S. hirticalcar, S. spathulatus* and *S. weinthalii* have been included in the genus *Parasarcochilus* by Alick Dockrill - author of *Australian Indigenous Orchids.* The main difference is that the above three species lack calli on the labellum.

Sarcochilus australis

Two older hybrids, *S.* Southern Cross (x *S. hartmannii*) and *S.* Shooting Star (x *S. fitzgeraldii*) have been popular in collections. A recent remake of *S.* Shooting Star, using a dark form of *S. fitzgeraldii*, has produced some darker flowers than the original. *S.* Otways (x *S.* Lois) produced arching sprays of light to deep pink flowers. However one of the pick of these hybrids is *S.* Emily (x *S.* Mavis) which flowers over a long period with lovely maroon blotched flowers. *S.* Star Struck (*S.* Southern Cross x *S. fitzgeraldii*) is a particularly vigorous hybrid that is very free flowering and is suited to cooler climates.

Sarcochilus dilatatus

This is a quaint brown species that has only been used in a handful of hybrids. Whilst *S.* Aussie Dawn (x *S. hartmannii*) is attractive, *S.* First Light (*S.* Aussie Dawn x *S. hartmannii*) is spectacular - already a couple from this grex have been awarded. This has been a most successful and popular hybrid, one of the best around. These have ranged in colour from deep creams and bright yellows through to spotted/speckled deep pink to brown flowers with deep cream undertones. The starry shape of *S. dilatatus* appears to be a trait that is lost in second generation hybrids, whilst the colour is maintained and not diluted by the influence of *S. hartmannii.* The recently registered *S.* Misty (*S.* Aussie Dawn x *S.* Riverdene) marks the first time that *S. dilatatus* and *S. hirticalcar* breeding lines have been brought together.

Sarcochilus falcatus

Sarcochilus falcatus is probably the most common of all *Sarcochilus* species, having a wide distribution from eastern Victoria northwards along the Great Dividing Range into north Queensland. It is generally an epiphyte of rainforest fringes in mountainous areas of volcanic origin. This is a splendid species in its own right, and whilst species such as *S. hartmannii, S. fitzgeraldii* and *S. ceciliae* have been line bred for many generations over a couple of decades, the "Orange Blossom Orchid" has been largely ignored.

It is an extremely variable species, in flower size, shape and colour. The base colour is generally white to cream with the late flowering race pure white. There are also a very few pale pink forms in existence. The colour of the labellum can vary somewhat. Some clones, particularly in northern New South Wales, exhibit richly golden coloured flared side-lobes complimented with varying degrees of purple on the 'chin'.

It's main positive features in hybridising being;

- allowing the colour through from other *Sarcochilus* (& related genera) species and hybrids without diluting the relative intensity of this colour.
- passing on its glistening and sparkling texture to its progeny.

- flower size is a dominant feature in the late flowering large white clones.
- seedlings are fast maturing, often giving a preview flowering on quite small plants - sometimes only months out of the flask.

S. falcatus appears to have a similar genetic feature to that found in *Dendrobium falcorostrum*. Both are white/cream flowered species and one would expect this to dilute colour when mated with a brightly coloured flower. Much the same way as would occur on a painter's pallet. However, having flowered and studied many hundreds of seedlings, this does not seem to be the case.

Sarcochilus hirticalcar

A fairly scarce species from a restricted area of north Queensland, that is now more readily available due to recent efforts in propagating it from seed. It does best grown with some heat in winter, whilst its seedlings seem to be cold tolerant. *S.* Riverdene (x *S. hartmannii*) and *S.* Frances (x *S. ceciliae*) have been around for a while and have the advantage of flowering for at least six months of the year, at a time when there is little else in flower. This is a major trait that is passed on from *S. hirticalcar*, as well as longer lasting flowers, which appear to be immune to botrytis.

Some very deep brick reds have come out of the crosses with *S. fitzgeraldii* (*S.* Nicky). *S.* Melody (*S.* Margaret Cottrell) and *S.* Ruby (*S.* Cherry Cheer). *S.* Polka Dot (x *S.* Pinkhart) is a stunning hybrid in its better forms; many of these are a mottled deep pink and can produce long spikes of shapely flowers on relatively small plants. A second generation hybrid - *S.* Bobby-Dazzler (*S.* Pinkhart x *S.* Riverdene) has definitely brought out the best characteristics from its parents. Some of the recent hybrids that deserve special mention include *S.* Velvet (*S.* Nicky x *S.* Riverdene) and *S.* Elise (*S. ceciliae* x *S.* Nicky) in the claret tones, the two-tone pinks of *S.* (Frances x *hartmannii*) to the harlequin style of another as yet unregistered hybrid *S.* (Frances x Riverdene). *S. hirticalcar* hybrids should always be snapped up when available, as I believe this species is the key to having 'sarcs' in flower year round.

Sarcochilus olivaceus

This variable yellowish green to olive green species is found throughout many of the rainforest areas along the east coast. It has been used sparingly in hybrids with the view of producing yellow to green hybrids, however the floral shape is generally poor with a high degree of twisting. There has been mixed success here, as the resulting progeny are often very slow growing, and the flower colour is somewhat muddy. *S.* Canary (x *S. hartmannii*) and *S.* Marion (x *S.* Fitzhart) are rarely seen, but the secondary hybrid *S.* Cream Cake (*S.* Marion x *S. hartmannii*) shows promise for further breeding. It now appears that the best chance for yellow hybrids lies in the albinistic form of *S. hartmannii* from the Numinbah Valley, using clones such as 'Yellow Snow'.

Sarcochilus serrulatus

This north Queensland species was described in 1972, being previously confused with *S. borealis*, which is actually closer to *S. olivaceus*. I know of only two hybrids utilising this brick red to brown flowered species. These are *S.* Colonial Rose (x *S. hartmannii*) and an unregistered pretty hybrid with *S. falcatus*.

Sarcochilus spathulatus

S. Lotus (x *S.* Lois) has been a consistent performer, producing very few poor quality plants with deep purple flowers. Some of the other hybrids of note are *S.* Tigress (x *S.* Fitzhart), which comes in a range of sunset shades, and the reliable *S.* Perky (x *S. hartmannii*). The unregistered hybrid with *S. falcatus* is well worth seeking out, and obviously needs to be grown on a mount. The second-generation hybrid *S.* Carnival (*S.* Perky x *S.* Fitzhart) produced some very bright blooms with dark purple to red spotting overlaying a cream to ochre coloured base. We should see many fine hybrids from this species in the future.

Sarcochilus weinthalii

An uncommon species from northern New South Wales and southern Queensland which has unique bluish purple to chocolate spotted/blotched flowers. The hybrid *S.* Weinhart (x *S. hartmannii*) and similar *S.* Aussie Weinman (*S.* Weinhart x *S. hartmannii*) are easy to grow and are reliable flowerers. *S.* Susan (x *S. falcatus*) produces unusual pinkish-grey flowers, however the pick of the hybrids is the dark pink spotted *S.* Jewell (*S.* Weinhart x *S. fitzgeraldii*). Some of the darker clones of *S.* Peach Spots (x *S. fitzgeraldii*) are most eyecatching. *S.* Freckles (x *S.* Riverdene) is an outstanding hybrid, and marks the first time that *S. weinthalii* and *S. hirticalcar* breeding lines have been brought together. This hybrid can bloom at almost anytime and has exceptional shape and colour for this style of hybrid. There are still many unflowered *S. weinthalii* crosses in collections and flasks and we look forward to further progress in the seasons ahead. In particular I anticipate some fine results when this line is linked to second-generation progeny from *S. hirticalcar* and *S. dilatatus.*

It is also very pleasing to note that selected outcrosses are being done between superior clones of this species to help entrench it in cultivation. In my experience, nursery raised plants have proved to be a lot easier to cultivate than their wild counterparts. I was therefore disgusted when I was informed (by a noted local orchid nurseryman) that the healthy Toowoomba population of this species was severely depleted (along with *Rhinerrhiza divitiflora*) by two "orchid lovers" during the 1994 flowering season. The area is, by the way, also a National Park. Hopefully other out-of-reach mature plants in the area may have re-populated this colony over the past eight years.

Plectorrhiza tridentata

Commonly known as the 'Tangle-root Orchid', this has been behind at least three very dainty hybrids. This species varies quite a bit in the colour and quality of its flowers; some can be very floriferous which is a trait worth maintaining. *Plectochilus* Kilgra (x *S. falcatus*) that comes in a range of colours from apple green - if the albino form of *P. tridentata* is used, through creams to rusty pinks. In fact the colour of the seedlings is solely dependent on the colour form of *P. tridentata* used. *Plectochilus* Richard Jost (x *S. hartmannii*) has lots of flowers, mainly creams with dark maroon centres. I have seen impressive robust plants with eight spikes to the growth. *Plectochilus* Rumrill (x *S. ceciliae*) is a miniature hybrid with brick red to deep purple flowers on progressive spikes. *Plectochilus* Harlequin (*S. hartmannii* x *Plectochilus* Richard Jost) is a new and most eye-catching hybrid that produced mustard coloured flowers with a dark brick red centre.

Plectorrhiza brevilabris

The closely related *Plectorrhiza brevilabris* from Queensland has only been involved in one recently registered hybrid. *Plectochilus* Brodie Vincent (x *S. falcatus*) has shown potential as a young plant on its debut flowering. Here we have autumn tones with brown markings. Here we have another example of how *S. falcatus* can influence shape without diluting colour. *Plectorrhiza brevilabris* should produce further exciting results over the next decade.

Plectorrhiza erecta

There is also an interesting novelty hybrid between *Plectorrhiza erecta* (an endemic species from Lord Howe Island) and *Sarcochilus ceciliae*, now registered as *Plectochilus* Minirose. The number of these have flowered and varied between pinks and apricot tones. Some clones I have seen are semi-peloric and have the labellum markings on the lateral sepals.

Pomatocalpa macphersonii

This tropical species has yellow with orange spotted blooms and is endemic to North Queensland. This has been used in only one registered hybrid, being the recently named intergeneric hybrid involving *Sarcochilus ceciliae*, now known as *Pomatochilus* Helga's Surprise. This has pink flowers with dark purple spotting produced sequentially. It appears to be a very slow growing hybrid that is reluctant to produce side growths.

Peristeranthus hillii

This is a fairly large growing plant that is rarely seen in cultivation. It produces long inflorescences of quite small tick-like fleshy flowers in green to golden brown shades. *Peristerchilus* Olive Grace (x *S. falcatus*) is the only registered hybrid to date. This unlikely pairing has produced some delightful plants, with numerous white to cream blooms and subtle lilac spotting overlaid on the floral segments.

Rhinerrhiza divitiflora

The 'Raspy-root Orchid' has been used in a handful of hybrids. Unfortunately many of these inherit the short-lived flowers of this stunning species. To my mind the primary hybrids *Rhinochilus* Dorothy (x *S. hartmannii*) and *R.* Rona (x *S. fitzgeraldii*) are somewhat disappointing, whilst R. Aussie Passion (x *S.* Fitzhart) is an improvement with increased vigour. The second-generation hybrid *R.* Vera (*S. hartmannii* x *R.* Dorothy) has a lot more to offer. It has large star-shaped white flowers with orange bands in the centre of the flower, which can last for over a week. The flowers generally all come out together unlike the primary hybrids, which can be rather spasmodic with their flowering.

Other Avenues

Little work has been done using the Australian Moth Orchid, *Phalaenopsis rosenstromii.* The hybrid between *Phalaenopsis* and *Sarcochilus, Sarconopsis,* has proved to be a bit of a fad. Viable seed has been difficult to produce in any but the tiniest of quantities, and many of the hybrids are slow growing and reluctant to flower with any regularity. To top it all off they don't grow well without heat during winter in southern Australia and often the flowers look like poor 'phallies' with small labellums.

The diminutive New Zealand species, *Drymoanthus adversus,* has been used in a few novelty hybrids which are pretty but I doubt would have wide horticultural appeal on account of their tiny flowers. However, personally I find they have a charm of their own. The late Malcolm Campbell (his initials were M.R.C., hence some of the registered names) from New Zealand made a number of these interesting hybrids. The ones I have seen include *Sarcomoanthus* Emarcy Gem (x *S. ceciliae*) and *Sarcomoanthus* Little Sparkle (x *S. falcatus*); the later made and registered by Lois Dougherty. There is also a tri-generic hybrid, and the name is bigger than the plant! This is *Malcolmcampbellara* Emarcy Magenta, the cross between *Sarcomoanthus* Emarcy Gem and *Plectorrhiza tridentata.* These hybrids perform better on cork or treefern mounts than in pots.

In the 'exotic' line, two special hybrids deserve mention. One is a hybrid between *Sartylis* Blue Knob (*Rhynchostylis retusa* x *Sarcochilus hartmannii*) and *Vanda coerulea.* This was hybridised and registered by our Patron Wal Upton as *Porterara* Blue Boy. *Porterara* Blue Boy is a strong growing monopodial plant that has combined the best qualities of the three species in its background. Most importantly, it provides a cool-growing 'tropical' flower to satisfy growers in temperate climates without the luxury of a heated glasshouse. The cultivar *Porterara* Blue Boy 'Jill' has been mericloned and will be marketed by Tinonee Orchids.

The other outstanding hybrid is the cross between *Rhynchostylis gigantea* and *Sarcochilus hartmannii* - now registered as *Sartylis* Jannine Banks, after my late wife. My clone of *Sartylis* Jannine Banks 'Krakatoa' has been awarded a Highly Commended Certificate from the Orchid Society of New South Wales and the Australian Orchid Council. A sister clone, *Sartylis* Jannine Banks 'Tinonee', owned by Ray Clement of New South Wales has won major prizes at shows and was awarded in Victoria. It has now been mericloned to help perpetuate this fine hybrid. Here we have a hybrid that can flower throughout the year, with blooms that last for over a month in fine condition. Colours range from whites with purple spotting through to intensely coloured clones with predominant dark purple bands. The *Sarcochilus* has significantly influenced the shape of this primary hybrid. A similar hybrid is *Sartylis* Bravehart, which is *Sarcochilus* Fitzhart crossed with *Rhynchostylis gigantea.*

We have already gone a long way from the days when the late Ira Butler started dabbling in the hybridising of these native gems. There has been a growing band of hybridists that are now starting to realise the true potential of these plants. Many of these people are not commercial nurserymen, but share a deep love of these orchids. Some of the more influential and innovative hybridists include Wal Upton, Neil Finch, Noel Jupp, Roger Bedford, Phil Spence, Ken Russell, Ted Gregory, Frank Simpson, Kevin Wilson, the late Sid Batchelor, John Woolf, Neville Roper, Ray Clement and David Butler. There may also be others that I am unaware of.

Try and seek out these novelty hybrids and when you do try to get half a dozen of them (or a flask if available). Also, get them from a range of hybridists, as no one has everything. I have seen many instances where people have bypassed certain crosses - until the first ones flower. By this time it may be too late as often they are then withdrawn from sale! Grow a few seedlings and share in the excitement.

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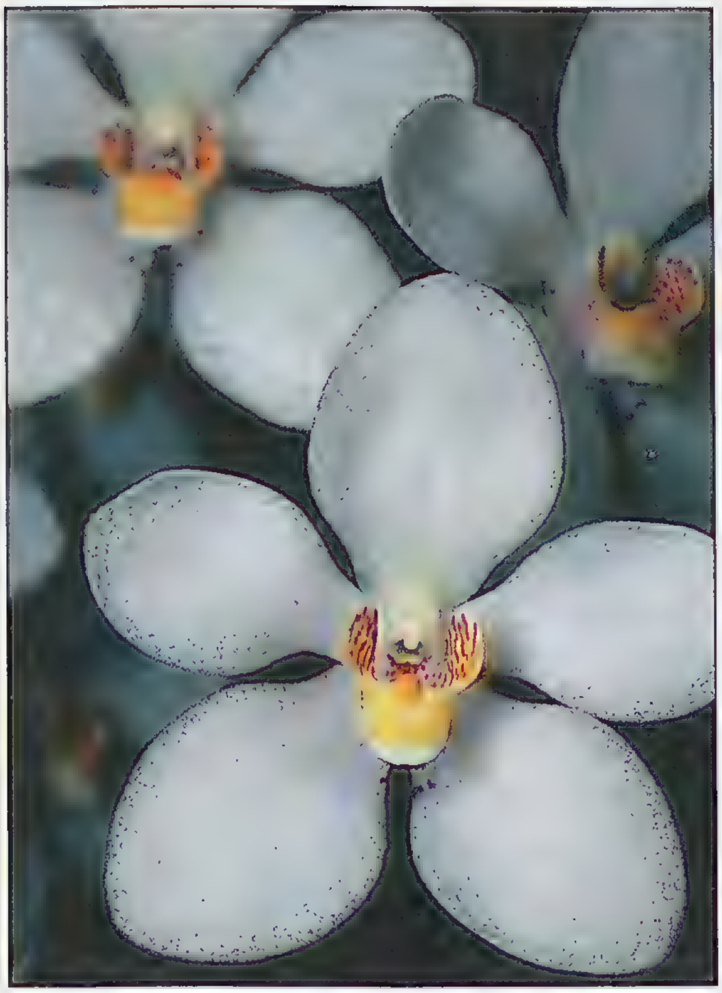
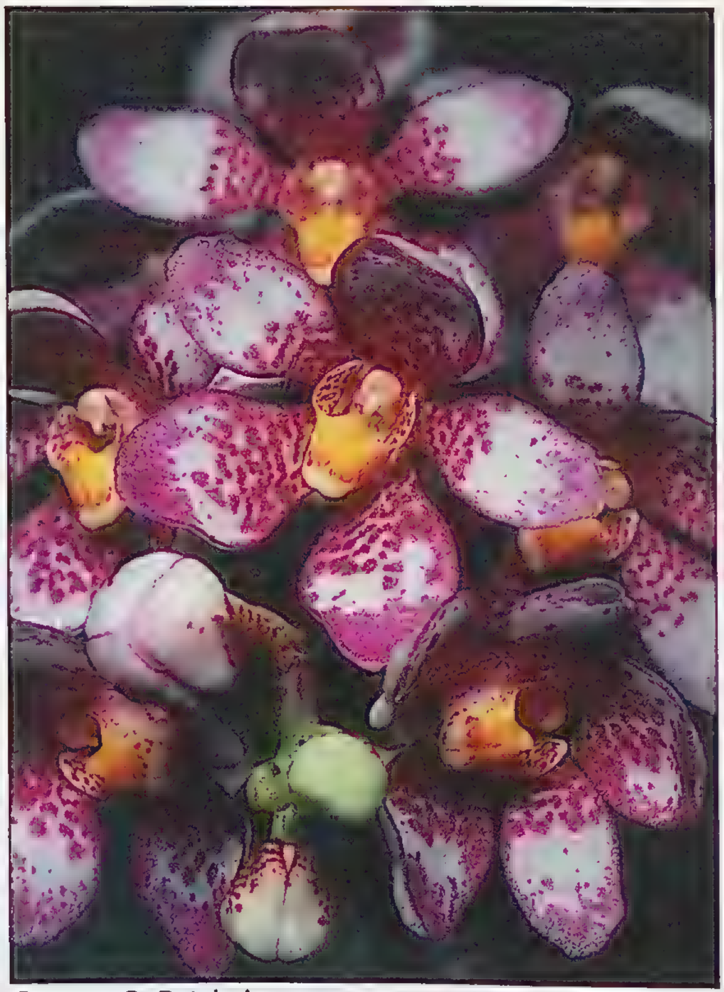


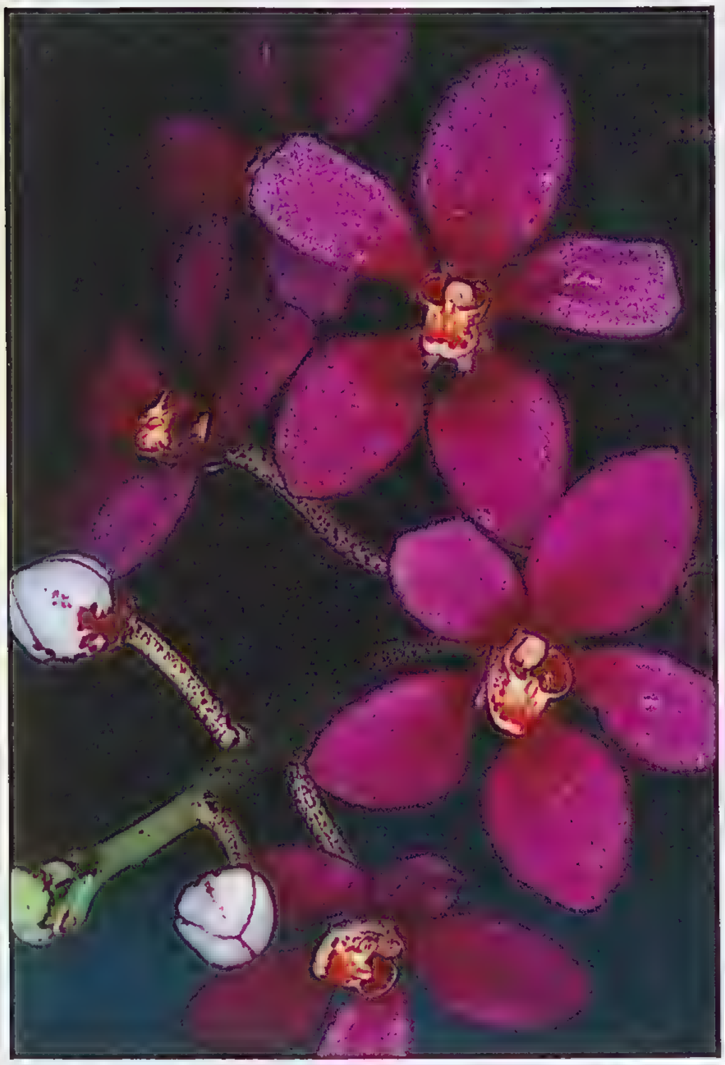
Grower, Bill Kennewell D.Titmuss

Sarcochilus **Judith 'Snowy'**



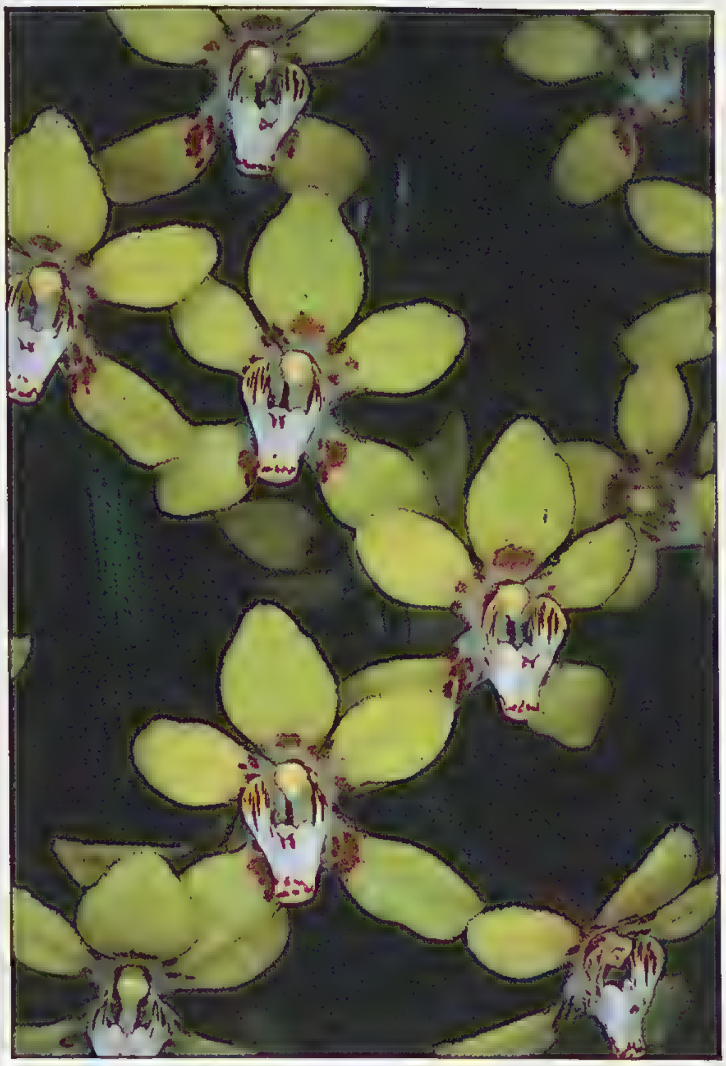
Grower, S. Batchelor D.Titmuss

Sarcochilus **Heidi**



Grower, David Butler D.Titmuss

***S.* Bernice Klein 'Painted Lady'**



Grower, S. Batchelor D.Titmuss

Sarcochilus **Perky**

Diplocaulobium angustitepalum (Orchidaceae), a New Species from Papua New Guinea

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Abstract

Diplocaulobium angustitepalum (Orchidaceae: Dendrobiinae) from Papua New Guinea is described as a new species.

Key words

Orchidaceae, *Diplocaulobium angustitepalum*, new species, Papua New Guinea.

Introduction

Diplocaulobium is a genus that has its greatest diversity in New Guinea but extends from Malaysia in the west to Fiji in the east and there are about 100 species. A revision of the genus is currently in progress by Wayne Harris and whilst in Papua New Guinea, Phil Spence brought this species to our attention and arranged for part of the plant to be sent to Canberra where it subsequently flowered. The last observed flowering at the NCBG in Port Moresby was in January 1998 when Phil Spence made floral dissection cards, which he kindly made available to us.

Material and methods

The description of the new species was made from fresh living plants, spirit preserved specimens stored in BANG mix (70% ethanol, 10% glycerol, and 20% water), floral dissection cards and 35mm colour transparencies of flowers and plants.

Taxonomy

Diplocaulobium angustitepalum W.K. Harris & M.A. Clem., sp. nov.

Species nova ab speciebus aliis Diplocaulobii sepalis petalisque angustis linearibus (illa c. 2 x 0.1 cm, haec c. 1.5 x 0.05 cm), labello brevi angusto (c. 1.0 x 0.1 cm) et mento non profundo differt; segmenta perianthii omnia aeque aurantiaca sunt.

Type

Cultivated at the Australian National Botanic Gardens ex National Capital Botanical Gardens, Port Moresby, Papua New Guinea; flowered Canberra 29 January 2001, M.A. Clements 9631,(holo CANB; isotype BRI)

Epiphytic, erect to creeping herb, c. 10-15 cm tall. Rhizomes short, initially clustered but becoming more distant with age, covered with pale brown scarious sheaths. Pseudobulbs light green, covered in pale brown scarious sheaths when young, fusiform, up to 2.5.cm at the base, 1-8.cm above, unifoliate. Leaf erect, stiff, channelled, linear, 3-7 mm x 4-13.5.cm, minutely bilobed at the apex. Inflorescence terminal one or two-flowered. Floral bract lanceolate, 1.2-1.5 cm long. Flower uniformly orange, nodding, perianth segments not widely spreading. Pedicel and ovary 1.5-3 cm long, erect to sub-erect, ovary not developed at anthesis. Dorsal sepal narrow linear, acuminate, 1.9-2.2 cm long, 0.1-0.15 cm wide at the base, tapering gradually to about 0.03 cm at the apex. Mentum, shallow, c. 0.12 cm deep. Lateral sepals narrow linear, acuminate, 1.9-2.2 cm long, 0.1-0.15 cm wide at the base, tapering gradually to about 0.03 cm at the apex. Petals narrow linear, acuminate, 1.5-1.8 cm long, c.0.05-0.07 cm wide at the base, tapering gradually to c. 0.05 cm at the apex. Labellum porrect, linear, 0.45-1.1 cm long, c. 0.01-0.13 cm wide in the proximal quarter, narrowing to c. 0.07 cm distally, margin inrolled distally. Column 2 mmlong, porrect from the ovary, with a 2mm column foot, slightly curved, with prominent fine stelidia. Stigma a deeply concave, hollow, c. 1 mm diametre. Anther ovate, c. 1 x 1 .5 mm. Pollinia obovoid, c. 0.5 mm long, light yellow. Capsule not seen.

Flowering Period

Cultivated plants are shy to flower and have been observed in flower only twice, both times in January. The flowers, which are a light orange colour and at first glance seem unopened, last only a day and do not turn pink as they age.

Distribution and Habitat

The plant was cultivated at the National Capital Botanical Gardens, Port Moresby but its precise origin is unknown. There is anecdotal evidence to suggest that it was collected on the Sogeri Plateau.

Recognition and Affinities This species is closest to *D. obyrnei* W.K. Harris (Harris 1997), in its habit and vegetative characters, but the flower structure is entirely different with its narrow perianth segments, small narrow labellum and uniform orange colour of the perianth segments. There is no other species in the genus with which it could be confused.

Etymology

The specific epithet is derived from the two Latin words, *angusti-* meaning narrow and *tepala* in reference to the narrow tepals.

Acknowledgments

We thank Phil Spence who, when he was in charge of the orchid collection at the National Capital Botanic Gardens, brought this species to our attention. Peter Bostock (BRI) provided the Latin diagnosis.

Literature Cited

Harris, W.K. (1997). *Diplocaulobium obyrnei* (Orchidaceae), a new species from Papua New Guinea. *Lasianthera* 1(3): 148-152.

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Rivieria Orchids Relaunch

After several years of stock rebuilding following the acquisition of Rivieria Orchids, Warren and Carolyn Simpson are nearly ready to release a listing of a limited range of quality Australian Native Orchid seedlings, both in pot and flask. They are still in a transition phase as the permanent nursery site is established, and will initially be open by appointment only. For further information and to go onto our mailing list, please drop Warren and Carolyn a line at: Rivieria Orchids, P.O. Box 294, Trafalgar, Victoria 3824. The email address is Warren.Simpson@Bonlac.com.au

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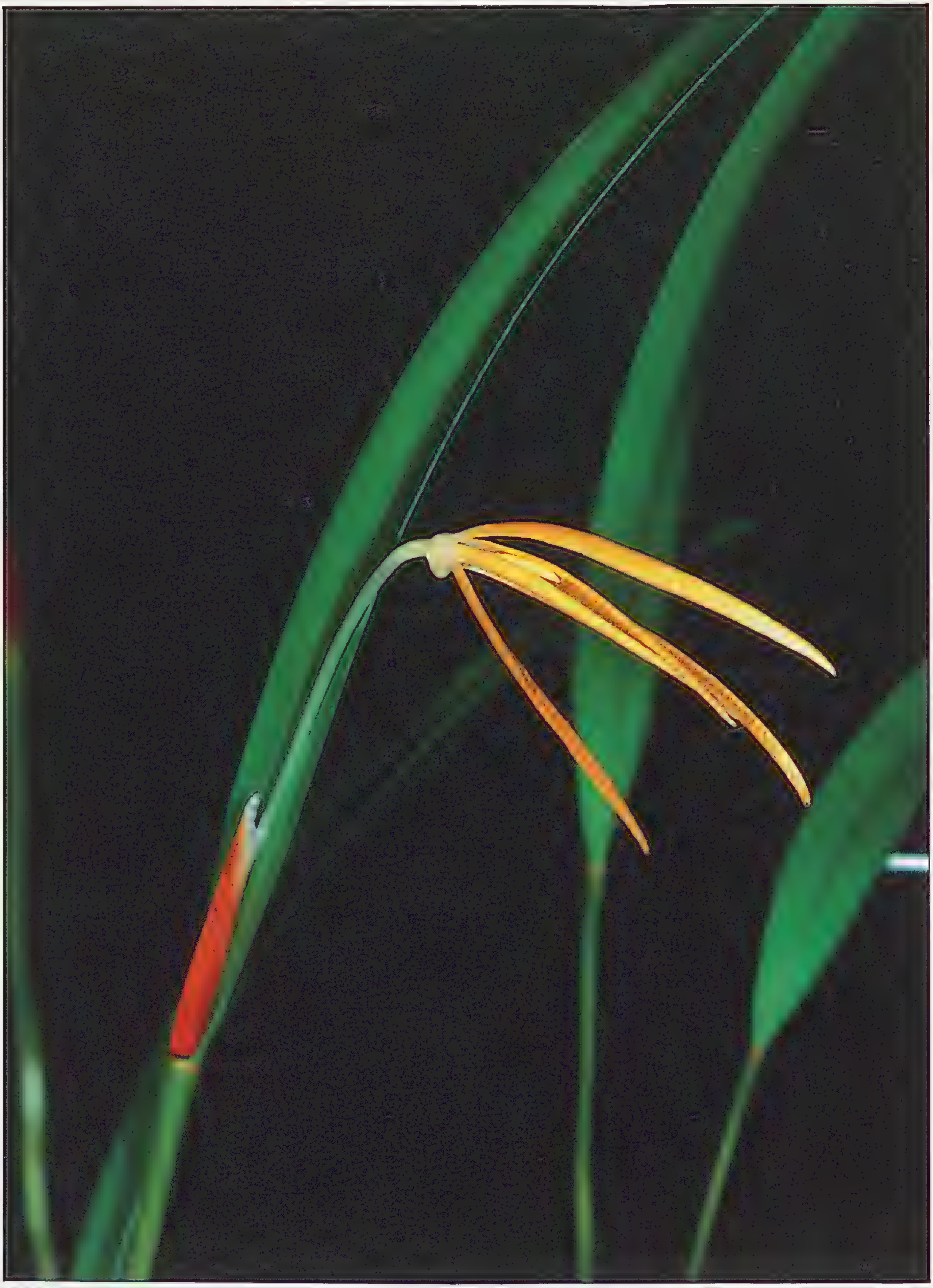
New Australian Native Orchid Hybrid Registrations

New registrations from the Royal Horticultural Society (abridged from *The Orchid Review*)
January - March 2002 registrations.

Name	Parentage	Registered by
Dendrobium		
Andrew Rinke	Gillieston Aura x Hamilton	B. Rinke (J. Woolf)
Angel Glow	Angellene x Ellen Glow	Down Under N.O.
Banxon	Graeme Banks x Hilda Poxon	Down Under N.O.
Dexter	Elegant Starlight x Hilda Poxon	Down Under N.O.
Intice	Intense x Candice	Down Under N.O.
Khe San	Rosella x Aussie Victory	Down Under N.O.
King of Hearts	Elegant Heart x Kathking	Down Under N.O.
Rusking	Lustrous x *kingianum*	Down Under N.O.
Sarcochilus		
Dawn Hart	Aussie Dawn x Pinkhart	Down Under N.O.
Gemma	Aussie Dawn x *spathulatus*	D. Butler



W.K. Harris

Diplocaulobium angustitepalum **from Papua New Guinea**
(photo of type plant)

Dendrobium macrostachyum Lindley, an earlier name for *Dendrobium stuartii* Bailey

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Abstract

The orchid that has been called *Dendrobium stuartii* Bailey in Australia and (or) *Dendrobium tetrodon* Reichb.f. ex Lindl. in Malaysia and Indonesia is shown to be a widespread weedy species with an earlier available name from Sri Lanka, *Dendrobium macrostachyum* Lindl.

Introduction

In the recent shattering of the traditional concept of *Dendrobium* in Australasia (Clements and Jones, 2002) I noticed the colour photograph labelled *Dendrobium stuartii* (p. 484). I recognized the plant immediately. Not as one might think from Australia or Southeast Asia (where it is known as *D. tetrodon*), but from my doctoral studies in southern India where I saw many plants of the same species in flower. After some research it became clear that only one widespread and remarkably uniform species was present, *Dendrobium macrostachyum*, first described from Sri Lanka by Lindley in 1830.

Taxonomy

Dendrobium macrostachyum Lindl., Gen. & Sp. Orch. Pl. 78 (1830). TYPE: SRI LANKA. *Macrae 17* (holo K).

Synonyms
Dendrobium tetrodon Reichb.f. ex Lindl., *J. Linn. Soc.* 3:10 (1859). TYPE: INDONESIA. Java, *Zollinger 11* (holo K).

Dendrobium stuartii Bailey, *Proc. Roy. Soc. Queensland* 1:12 (1884); *Callista stuartii* (Bailey) O. Kuntze, Revis. Gen. Pl. 2:655 (1891). NEOTYPE (designated by Clements 1989): AUSTRALIA. Drawing by Fitzgerald published in *Austr. Orch.* 2(3): *t. 6* (1888).

Dendrobium viridicatum Ridl., J. Str. Br. R. As. Soc. 39:72 (1903). TYPE: MALAYA. *Goldham s. n.* (holo BM?/SING?).

Dendrobium whiteanum Hunt, *Queensland Naturalist* 14:60 (1951). TYPE: AUSTRALIA. *Johnson s. n.* (holo BRI).

Distribution: Southern India (Saldanha and Nicolson 1976), Sri Lanka (Jayaweera 1981; type of *D. macrostachyum*), Thailand (Seidenfaden 1985), Vietnam (Averyanov 1994), Peninsular Malaysia (Seidenfaden and Wood 1992), Sumatra (Seidenfaden 1985), Java (Comber 1990; type of *D. tetrodon*), Bali (Comber 1990), Borneo (Wood and Cribb 1994), Sulawesi (Thomas and Schuiteman 2002, as *D. tetrodon* var. *vanvuurenii* J.J. Sm.), and Australia (Dockrill 1992; types of *D. stuartii* and *D. whiteanum*).

When Lindley described *D. tetrodon* he asked the question "Can it be a Peloria of *D. macrostachyum*?" With the exception of J.J. Smith (1905), later authors forgot this connection made by Lindley between plants from Sri Lanka and Indonesia (Java). Instead, subsequent studies focused on the application of the name *D. tetrodon* in Indochina and Australia.

Regarding the relationship of the Australian *D. stuartii* and the Javanese *D. tetrodon*, Clements (1989) stated, "The type of *D. tetrodon*, which I examined in Wein [sic], is representative of another species closely allied to *D. aphyllum*." If so, then what species? The only similar species recorded from Java is *D. heterocarpum* Wall., a much larger-flowered species well known to Lindley that disagrees with Lindley's protologue of *D. tetrodon*. The non-peloric plants of *D. tetrodon* from Java (Smith 1908: *t. 283*) agree completely with Australian plants known as *D. stuartii*. There is no question that the Australian and Javanese plants represent one species and that this species extends westward to Thailand (Seidenfaden 1985).

But is *D. tetrodon* the same as the earlier *D. macrostachyum* from Sri Lanka? The best evidence is the colour plate of the type clone of *D. macrostachyum* published in the *Botanical Register* in 1836 (vol. 22: *t. 1865*) which shows a species identical to what has been called both *D. stuartii* and *D. tetrodon*. A more detailed line drawing of *D. macrostachyum* from Sri Lanka can be found in Jayaweera (1981). Both of these illustrations agree with my herbarium collections made in the Western Ghats of southern India.

It is a remarkable snippet of history that we have available a colour illustration based on the type clone of *D. macrostachyum* drawn some five years after that same clone was pressed to "death" between sheets of paper in the processing of a herbarium specimen. Lindley told the story in the text complimenting his *t. 1865.*

> "A native of Ceylon, where it was discovered by the late Mr. James Macrae, who some years ago sent me dried specimens and a drawing of it. Upon the former I found a minute branched portion that seemed still alive; this was fastened by a nail and shred to a damp shady wall in a stove in the garden of the Horticultural Society, where it gradually recovered its green colour and began to grow. By tending it carefully, and not feeding it until it had recovered the effects of its long fast while buried between sheets of brown paper in a dry chest, it gradually recovered and grew into a plant, the offspring of which has been distributed. From one of them, which flowered in the garden of Mr. Bateman, the accompanying drawing was prepared in June last."

The "minute branched portion" Lindley referred to was no doubt a keiki initiated after Macrae pressed the parent cane. I have had this happen in my own experience with preparing herbarium specimens of *Dendrobium*. Macrae collected in Sri Lanka from 1827 to 1830. It is unlikely in the time frame that Macrae sent back specimens, Lindley established a living plant, and seedlings were raised and flowered by June 1835. Thus it seems reasonable that Bateman's plant ("offspring") was either a division or a secondary keiki of the type plant/clone.

Dendrobium macrostachyum is one of the most widespread species of orchid in the Old World. It is also a weedy species and plants in nature typically have a heavy fruit set, greater than that seen in related species occupying the same or similar habitats. In addition to naturally heavy fruit set, cleistogamous populations are known from several populations (India, pers. obs.; Java, Comber 1990; Thailand, Fig. 13a in Seidenfaden 1985).

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Letters (and emails) to the Editor

Dear David, (by email 26/5/02)

I object strongly to the article published by Clements and Jones in the April edition of *The Orchadian*. There are two major issues; the first concerns the role of the editorial committee in allowing this article to be published in its current form, the second concerns the article itself which puts forward a taxonomic system which is so extremely complex that I would suggest will be unworkable for the stakeholders in such issues (hobbyists, nursery people and the community in general).

1. Refereeing of scientific papers/role of editorial committee

This should involve a proper critical review of articles submitted for publication. In this case, the article has a 60-word introduction, which provides absolutely no justification for the extremely complex system being put forward (I assume as a fait accompli) and the likely problems/issues that the introduction would face. The issue is not only local, but has major implications for *Dendrobium* taxonomy worldwide. At the very least, the editorial committee should have insisted on a proper introductory review and lead-in to the subject matter. For this lack of rigour, I do not propose to renew my subscription to *The Orchadian.*

2. The Article Itself

The changes outlined are presented, again I presume, as a fait accompli. I would suggest most practitioners (ie the "customers" of these name changes) would simply ignore them and continue using the names, which continue to cause no ambiguity as far as I am aware. The complexity is such as to make the system unworkable in the context of labelling of hybrids (let alone species) and the updating of hybrid databases (quite apart from all the pre printed plant labels and catalogues!). Other issues concern the relating of the new names to those in earlier publications. The introduction of *Dockrillia* for the terete dendrobiums is one thing, but this new system is quite another. The system is also out of step with practice twice removed. For example, very few people refer to *Dendrobium speciosum* var. *hillii* as *tarberi* or var *grandiflorum* as *rex.* There is still considerable controversy over whether *speciosum* var. *bancroftianum* is a valid classification within species *speciosum.* Now, we have *Thelychiton tarberi, Thelychiton rex* and *Thelychiton jonesii* subspecies *bancroftianus* - hardly an advantage over the familiar *D. speciosum* var. *hillii, grandiflorum* and *D. jonesii.*

I believe that without the involvement of the "users" in the process of taxonomic reform then that "reform" will be doomed from the start. The lack of a discussion of the implications of this for genus *Dendrobium* worldwide and whether these changes can be argued for in a global context is a clear omission and, in itself, would have resulted in rejection of the article for publication had I been on the publications committee.

With regards,

Phil Ritchie BSc (Hons), PhD
6 The Avenue, Balaclava, Vic 3183
email: ritchiep@ihug.com.au

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Dear David, (by email 1/6/02)

Concerning my earlier message to you (26/5/02), I should have mentioned that I am a member of ANOS (Vic Group) and The Victorian Orchid Club. I speak only as an individual, but I do know that many others agree with the sentiments if not necessarily all of the points I made.

Re *The Orchadian*, I would just add:

(a) It is the official journal of The Australasian Native Orchid Society. As such it needs to reflect the rights and interests of all members. It cannot simply be a repository for articles independent of editorial comment and a letters to the editor section.

(b) The journal needs some direction from an editorial point of view. It needs a mission statement, so that it has a clear purpose for existence and it needs clear mechanisms to ensure it is meeting the needs of members and representing their interests and views. There is no conflict between this and the publication of technical/scientific papers. For example, in my own field I have Chemistry Australia and Surface Coatings Australia. Both are national journals of their respective associations and combine the publication of technical articles with an editorial reflecting direction and general items of interest and a correspondence column. All articles are refereed and need to satisfy various criteria prior to publication. Articles for *The Orchadian* need to go through a referee process and vetted for adequate background/introduction and structure. If contentious, there needs to be some editorial comment particularly for a national association journal, which purports to represent the interests of a diverse range of stakeholders.

(c) A key issue over the last year has been taxonomy (both terrestrials and epiphytes). The national body and *The Orchadian* must press for a process which calls for buy-in from all stakeholders. This process has not been adopted nor gone through. *The Orchadian* should press for this vigorously starting with an editorial. An election process involving an informed group representing all interests needs to proceed concerning contentious taxonomic change. This is necessary to ensure such changes are truly justified. Proposed changes need to pass utilitarian as well as scientific criteria prior to being considered for adoption. On a balance sheet approach, unjustified changes should not proceed. Such a process occurs prior to:

- adoption of a new Australian Standard (Australian Standards Association)
- the naming of organic compounds (International Union of Pure & Applied Chemistry)
- changes to units used in scientific investigation and by the general community

These are just a few examples. The taxonomical changes outlined in the last issue of *The Orchadian* are just as far reaching and must go through a process of debate and justification prior to a determination being made as to the case for adoption.

David, there are great opportunities for improving the awareness and involvement from the community in all aspects of orchid culture and conservation. This cause is simply not helped by arbitrary taxonomic changes that have not been subjected to any process of critical review.

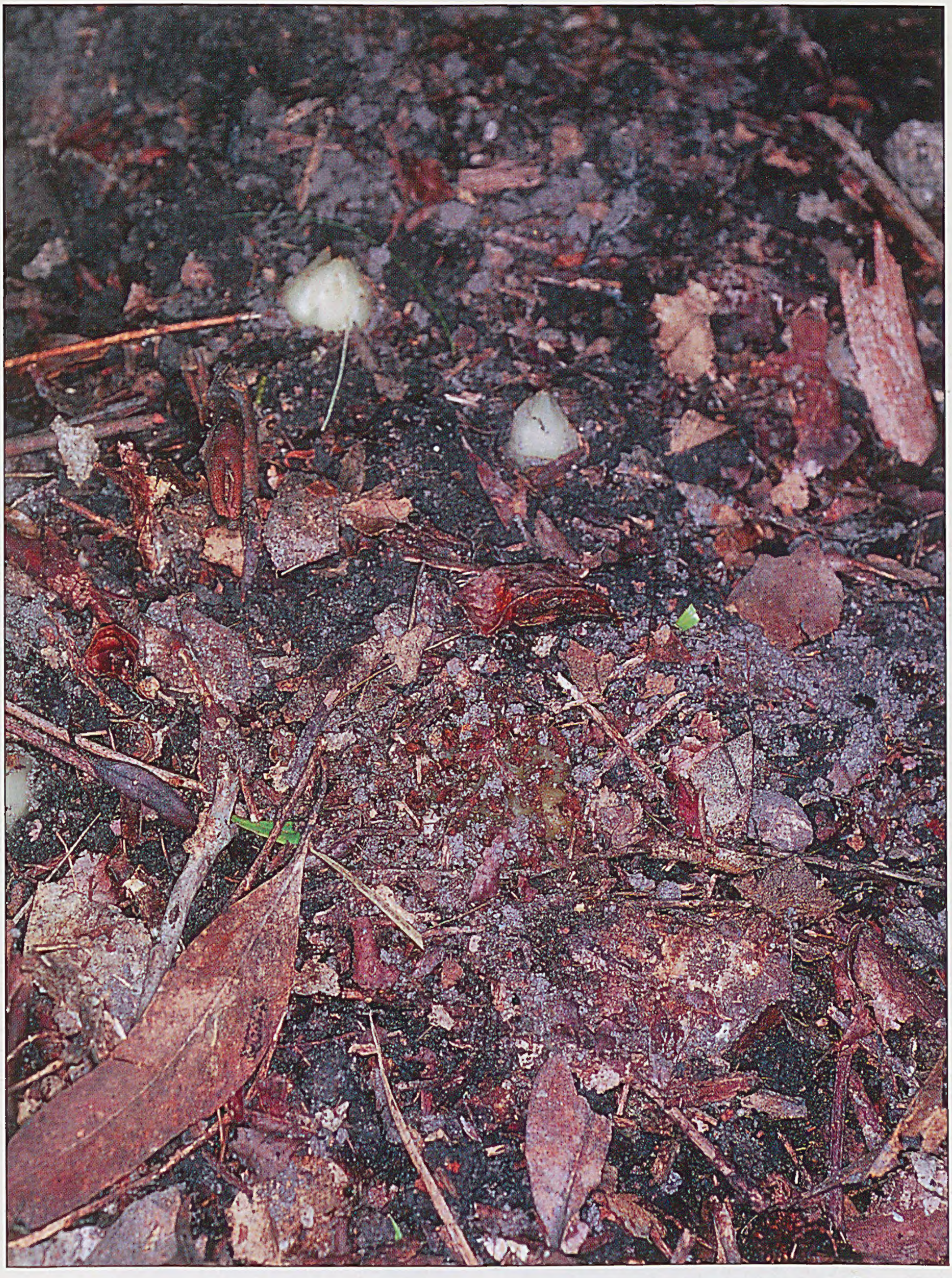
With regards,
Phil Ritchie

Editor's Reply

Thank you ever so much Mr Ritchie for telling me how I should do my job. It's just a shame that you waited six years, and the eve of my final issue, to let me know that I have got it wrong for the past 23 issues. Sorry to remind you of this, but every scientific and nomenclatural article for this journal IS refereed before it gets printed within these pages. The Clements and Jones article is an alternative taxonomic proposal for the way some of the Australian orchids are classified. No one is holding a gun at your head to change the names on your own plants. If you wish to continue calling them dendrobiums, go right ahead, that's fine. In fact, let's just go back to using the common names instead.

You are probably unaware of this, but there are several taxonomists around the globe that are currently reviewing Australian orchids, and publishing new combinations and new genera in overseas journals (that may or may not be referred) that are not always readily available to us in Australia. I was previously (before my time as Editor) critical of Mark Clements and David Jones for publishing so many new Australian species in foreign journals. I believed they should have appeared in an Australian journal, such as *The Orchadian*, where the highest concentrations of Australasian orchid enthusiasts subscribe, so they could see these items first hand. You hinted that "very few people" refer to the newer names. Many of these names were proposed over a decade ago, and I think you would be surprised with the level of acceptance of their determinations. Just have a look at the latest books dealing with Australian orchids, at a regional or State level. As Editor, I can only consider for publication items that are sent to me. So I am sure that Peter Eygelshoven, as the next Editor, will look forward to your learned contributions for future issues.

DPB



David P. Banks © 21st May 2002

***Rhizanthella slateri*, from Alum Mt., New South Wales**

Note the two developing flower heads, and seed capsules just below the centre of the photograph. For the photographs, the leaf litter had been cleared away, and the flowering heads partly excavated, before being re-covered. Flowering is expected to commence in September.

Dear Editor,
The September 2001 issue of *The Orchadian* contained two taxonomic papers, which I found very interesting. Both papers contained momentous taxonomic changes, one to the genus *Caladenia* and the other splitting off two species from the genus *Bulbophyllum*.

While having no taxonomic pretensions, I would query the publication of these changes in *The Orchadian*. The journal of the ANOS has published a substantial amount of orchid taxonomy over more than 30 years, however *The Orchadian* has never been entirely devoted to taxonomy and I am sure the membership would prefer it that way. It would seem from my naive perspective that both of these papers would have been better published in a prestigious journal of botanical taxonomy such as *Australian Systematic Botany*. *Blumea*, *Austrobaileya* or *Telopea*. If published in one of these journals the changes advocated could be scrutinised by the wider world of taxonomic botany.

For all I know the taxonomic changes proposed by the authors may have considerable merit, but I would question whether *The Orchadian* is an appropriate publication for what could be seen by some as taxonomic polemic.

Yours sincerely,
Graham Young
P.O Box 28
Kuranda Qld 4872
24th June 2002

Editor's Reply
As a matter of interest, not every paper submitted to me by Mark Clements and David Jones has been published in *The Orchadian*. Some were not considered whilst others were published in a condensed or amended format. The only article that was "rejected" was one on a new *Bulbophyllum* species from New Guinea. After it was refereed, I sent the referee's report back to the author, along with a note from myself asking for a slide of the flower, stating that I would prefer to publish the new species with a colour photograph, to go with the fine line drawing that was submitted. I never heard anything more on this, until I found that it was published in another journal a few years later. In hindsight, I wish I published the paper, as I could have always included a colour plate at a later date. Had I done this, I am sure we would have had more contributions on New Guinea orchids from Neville Howcroft published in *The Orchadian*. Nev and I have since corresponded quite a bit by email over the past twelve months, and that early episode remains as my one real regret as Editor. At the end of the day, *The Orchadian* relies on you, the members, for its editorial content. Articles don't just appear out of mid-air. As we have witnessed, it is easy to be critical, but it takes a bit more effort to be pro-active and make a tangible contribution to our native orchids.

DPB

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Royal Botanic Gardens Victoria
RBG00025674

Dear ANOS Inc,

I understand issue 13, 11 of *The Orchadian* was the last Banks edited book and that Peter Eygelshoven is taking over the reins. If this is correct then I am prepared to write for the journal, for it will need support from authors. My first article for the journal for some years pertains to the description of a new species of *Dendrobium* sect. *Latourea* from West New Guinea.

I will NOT write for the journal whilst Banks ruins its reputation with articles from the Canberra mafia that are not refereed or refereed not by persons competent in the field of orchid systematics.

Please let me know when the new editorship is at hand.

Yours faithfully,
Paul Ormerod
P.O. Box 8210
Cairns 4870 Qld

Editor's Reply

Paul Ormerod's letter is both infantile and factually incorrect (and Paul, the correct spelling is *Latouria* by the way). The reference to "the Canberra mafia" is offensive, malicious and un-Australian. I find his remarks ironic for someone who, by his own choice, has published in obscure publications that have a very limited following. For this reason, very few native orchid enthusiasts would have ever heard of *Rhinerrhizopsis*, which again ironically you did a "Clements and Jones" on, by taking it (*Rhinerrhiza moorei*) out of *Rhinerrhiza*. You are complaining about a system that you obviously follow! You should play the ball and not the man. At least Clements and Jones also study live specimens. For the interest of the membership, during my term as Editor, Paul Ormerod has not submitted any material whatsoever for consideration in *The Orchadian*. When I was appointed Editor back in late 1996, he did send me a handwritten letter, proposing an article on *Rhomboda*. So I went back to his article published in the March 1995 issue of *The Orchadian* (11) 7: 323-339. It mostly related to Asian species, with only a few classified as Australasian. The line drawings accompanying the article (probably taken only off herbarium material) were of a very poor standard, and I would defy anyone to positively identify anything off them. If you have that issue, go back and judge for yourself. The problem was that this new article was again not going to primarily relate to Australasian species, and I wrote back to Paul along those lines, suggesting that I would like to see the finished article, that it would be refereed (as ALL the scientific and taxonomic articles have been over my term as Editor), and that I would only publish high quality drawings and photographs. I never heard from him again.

DPB

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Editorship of *The Orchadian*

As many of you would know, this issue is my last as Editor of *The Orchadian*. I have now overseen this publication for the past six years and have put out two volumes, 24 issues and well over a thousand pages of text, illustrations and photographs pertaining to Australasian orchids.

I am proud of the fact that so many new Australian orchids have been described in these pages, as I believe the past two volumes have mirrored an enormous increase in interest in our native flora. Whilst some of this has certainly not been "bedtime reading", I am sure that the articles included will be used as academic references for many years to come. However, as I have often stated, an Editor can only publish material that is submitted.

I personally would have liked to have seen more articles on field trips, new hybrids, conservation initiatives, variations within popular species and the like. However, articles do not get written by themselves. I am constantly bemused to note that the whingers who complain are the ones who never put pen to paper. It is far easier to knock something, than to make a contribution. Maybe they don't want others to judge their work?

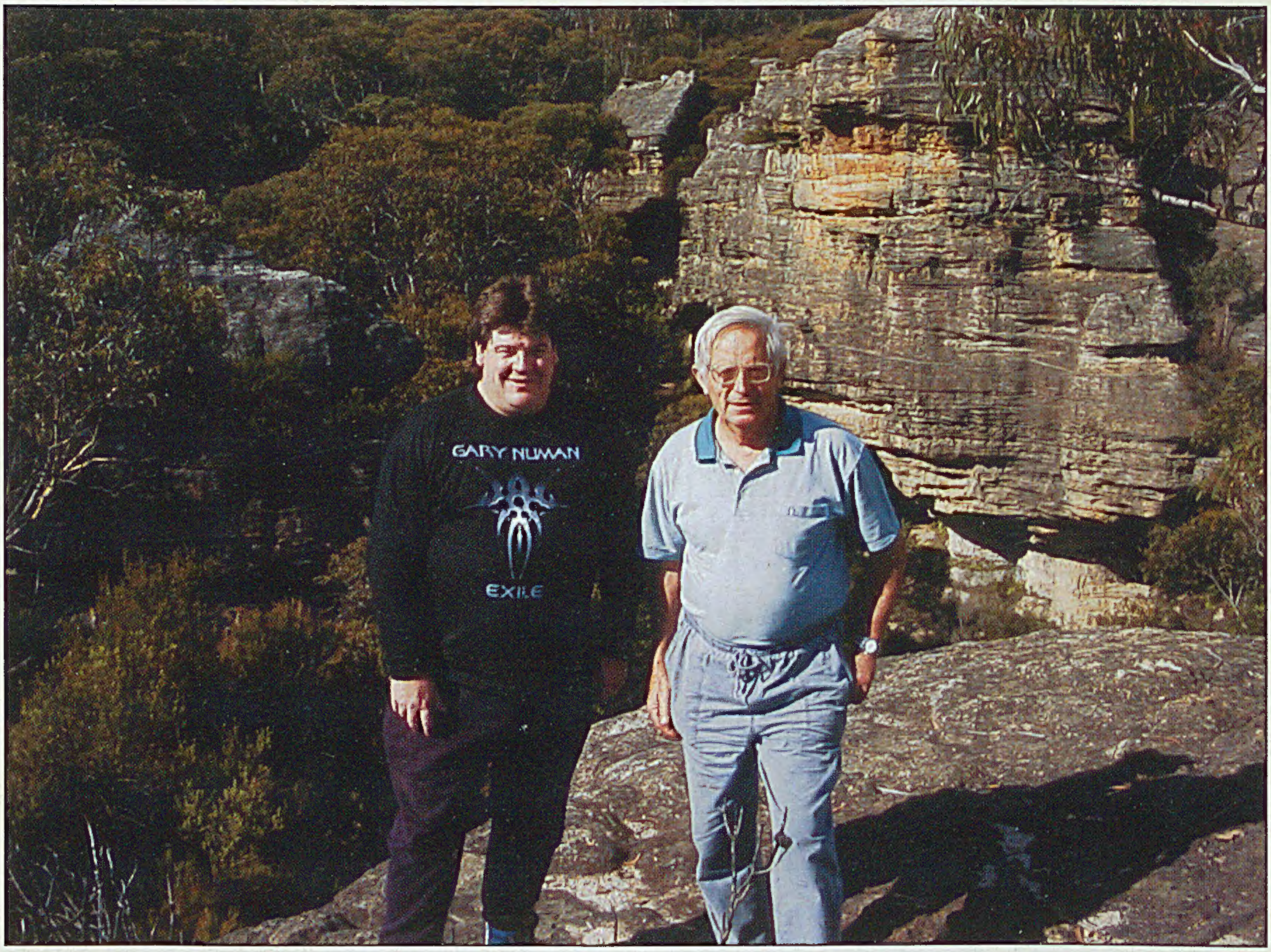
I would have liked to have done more for the national body, as I felt I had a lot of ideas and enthusiasm to offer, but that unfortunately wasn't to be. Sadly, I believe there has been a lack of direction from the top over the past decade. I tried to do something about it, but sadly some people continue to support underachievers. I would like to sincerely thank the people who have really supported me during my time on ANOS Council, in particular John Riley, Michael Harrison, David Titmuss, Mark Clements, David Jones, Jim Cootes & Darryl Smedley. Also Terry Webster & Bob Pickett for assistance and advice with production.

I will still have connections with native orchids, as I will continue to edit *Australian Orchid Research* and I enjoy editing the *Australian Orchid Review*, which is Australia's largest orchid periodical. I am also involved in a number of book projects, including the *Orchids of Australia* series with illustrator John Riley.

At the ANOS AGM, Peter Eygelshoven will be elected unopposed as Editor of *The Orchadian* from Volume 14. Peter has spent many years on ANOS Council, and is heavily involved with ANOS Warringah Group in New South Wales. I trust that you support Peter with articles, photographs and items of interest for *The Orchadian*. Peter can be contacted by phone on (02) 9913-9228, or by email at peygelshoven@optusnet.com.au. I wish Peter all the best in his new role, and hope he will get tangible support from ANOS Council and its members.

Thank you and goodbye.

David P. Banks
Seven Hills, NSW.



David P. Banks and John J. Riley at the Blue Mountains, April 2002

Orchids of Australia - Volume 1

By John J. Riley and David P. Banks

This work is the first volume in a planned series of books, to be published by University of New South Wales Press (www.unswpress.com.au) that will showcase the diversity and beauty of Australia's unique orchid flora, and also the rare talent of acclaimed illustrator John J. Riley. One hundred and fifty species are covered in this volume, including both terrestrial and epiphytic orchids from all parts of Australia. It will include many of the well-known and widespread species as well as many that are extremely rare, some of which have only been recently discovered and described. John J. Riley and David P. Banks have written the text.

For every species, there is a page of text, with the colour illustration opposite. The orchid genera have been arranged alphabetically. These genera, where appropriate, have been separated into informal groupings, with the species then appearing in chronological order, starting with the first named. Therefore closely related taxa will be grouped together, for easier comparison.

This work will become a benchmark in Australian botanical and artistic circles, combining the most up-to-date nomenclatural treatment of our indigenous orchids with superb, highly detailed, full colour botanical illustrations. Apart from the standard edition, there will also be a collector's edition, presented in a slipcase and limited to 500-signed copies, with an extra plate included. *Orchids of Australia* – Volume 1 is due for release in October 2002.

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